



November 2013

## Lactarius Notebook 25

L. R. Hesler

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Sm-2559 LACTARIUS OCCIDENTALIS A. H. Smith

Under alder and cedar, Crescent Beach, Washington, leg. Smith,  
September 22, 1935 (Brittonia 12:347. 1960).

### Type

Pileus 1-3.5 cm broad, disc depressed, papillate at times, margin decurved, surface moist, not viscid, opaque at first but striate at maturity, color "olive brown" to "fuscous" to "bister," "bone brown," "sepia" or finally "saya brown" (olive to fuscous at first gradually redder to dingy cinnamon), surface often rugulose or pitted; latex white (whey-like), changing to yellow, mild.

Lamellae close, narrow, adnate or decurrent by lines, "light pinkish cinnamon" to "pinkish cinnamon," slowly staining incarnate-tan where injured.

Stipe 3-6 cm long, 5-6 mm thick, evenly enlarged downward to equal, smooth, glabrous but unpolished solid, "sepia" or paler, paler above, flesh slowly reddish brown where cut.

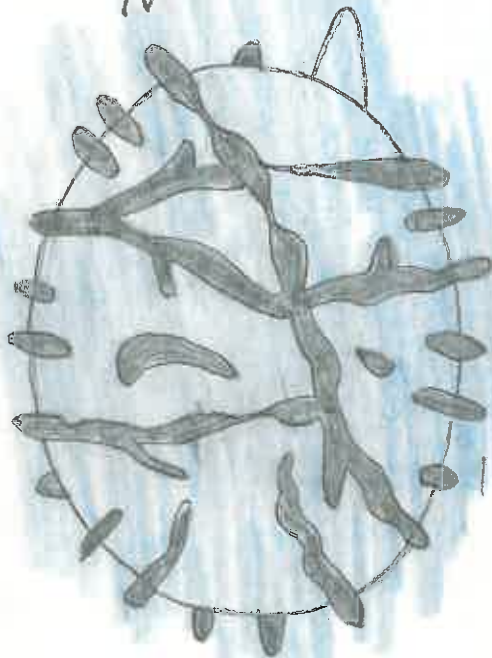
### Notes by Hesler

Spores 7-9 x 5.5-6.5  $\mu$ , ellipsoid to broadly ellipsoid, with close-set warts connected to form an incomplete reticulum. Basidia four-spored. Pleurocystidia 62-80 x 7-10  $\mu$ , narrowly fusoid-pointed, content granular in KOH; cheilocystidia similar to pleurocystidia. Pileus cuticle of upright to decumbent, clavate-pedicellate cells, or cells vesiculose-pedicellate to pyriform hyaline in KOH, the layer 2-3 deep (staggered and not in an even palisade).

*Lactarius occidentalis* A.H. Sm.

Sm-2559 : Type

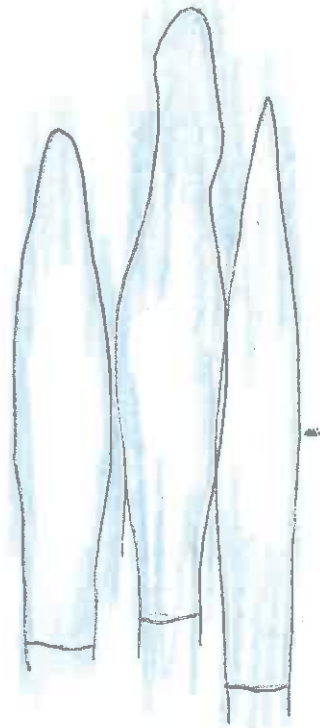
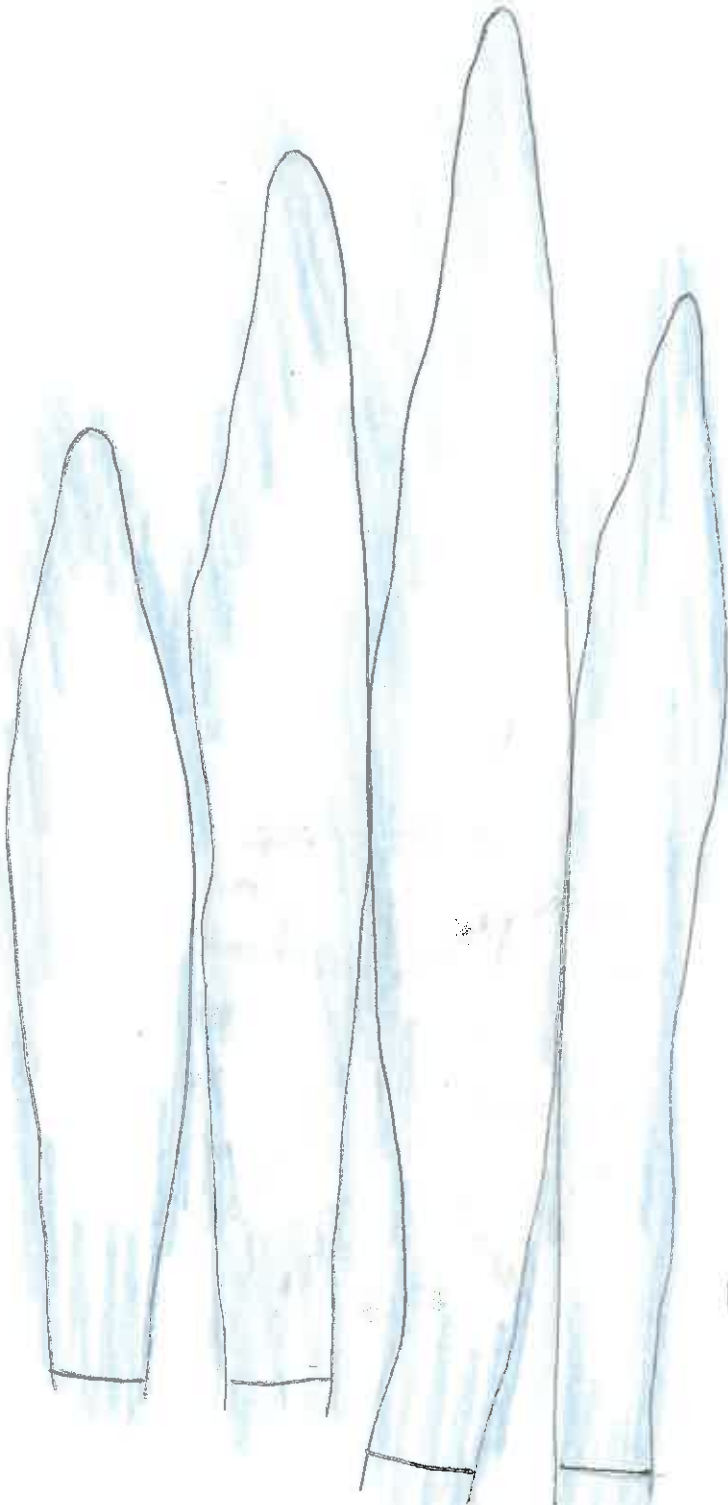
*Heccogeli*



157

*L. occidentalis* A. H. Sm.

Sm - 2559: Type



15/3

Cl - x 2000

15/3

Pl - x 2000

*Gastrophysalis occidentalis*

*fungali*

Sm-2559 - Type



§ 1755

Pileus cuticle:  
± Clavate-papillate  
and a few pseudo. -  $\times 1000$

Sm-13258

*occidentalis* Sm.  
LACTARIUS ~~ODORATILUS~~

Scattered on mossy soil "Bottom" Clearwater River,  
Idaho, September 5, 1939, 5-9-39.

Notes by Smith

Pileus 1-2.5 cm broad, disc depressed and with a papilla in the bottom, margin arched, striatulate to near the disc, moist, "Sayal Brown" on disc to "cinnamon" over the margin, fading. Context thin, plant, concolor; odor and taste mild, latex scant, watery white, unchanging, very slowly becoming pale yellow in some.

Gills close to subdistant (28-33), broad $\chi$  (3+ mm) adnate or appearing about decurrent when cap margin is elevated, "Buff Pink" in color, edges even, often white, pruinose from spores.

Stipe 2-3 cm x 2-3 mm, equal, hollow, fragile, sordid "cinnamon" in color, glabrous or white, pruinose from spores in age, with a faint bloom when real young.

Spores 7-8 x 5.5-6.5  $\mu$ . Check in iodine. Cystidia present.

Pileus trama distinctive, corticulate by a region of inflated cells as in H. incertum (see Romagnesi (Cyathula 14004)).

Notes by Hesler

Spores 7.5-9.5 x 6-7.5  $\mu$ , warts 0.2-0.6  $\mu$  high, with

bands and lines forming a more or less incomplete reticulum. Basidia 33-37 x 8-10  $\mu$ , 4-spored. Pleurocystidia 54-92 x 6-8  $\mu$ , scattered; cheilocystidia 22-33 x 3-6  $\mu$ . Pileus cuticle a palisade of clavate cells, which disappear in age. Stipe cuticle repent, bearing numerous caulocystidia (usually not a turf), clavate, 20-33 x 3-5  $\mu$ , no rosettes.



Sm 13258 - *Lactarius* <sup>*occidentalis*</sup> ~~*obnubilus*~~



*occidentalis*

Sm - 13870

LACTARIUS ~~OBNUBILUS~~

(see card, Sm-13258)

Under Alder, Olympic Peninsula, Washington, May 30, 1939.

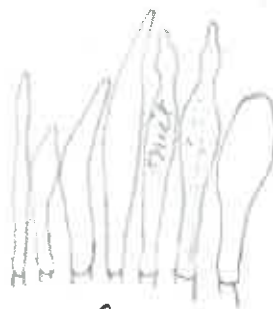
Spores 7.5-9.5 x 6-7.5  $\mu$ , warts 0.4-0.8  $\mu$  high, with bands and lines, not forming a reticulum. Pl 54-93 x 5-10  $\mu$ , fusoid, ventricose, apices usually tapering to a point, granular-spangled; pseudo present on sides and edges; cheilocystidia 20-36 x 2-9  $\mu$ , usually fusoid, clavate, ventricose, more rarely subvesiculose or subpyriform, inconspicuous, absent in some sections. Pileus cuticle more or less of a palisade (distinct in young pilei) of clavate, subpyriform, or vesiculose cells, more or less interspersed among the cells of a zone 3-5 cells deep, the palisade (surface layer), tending to disappear in age, leaving the subcuticular cell-zone exposed. Stipe cortex without rosettes.

*Sactarius obrabilus occidentalis*  
Sm - 13870



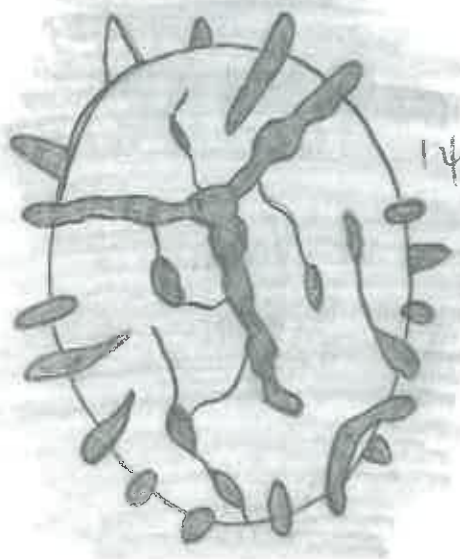
145

Sp - x 1000



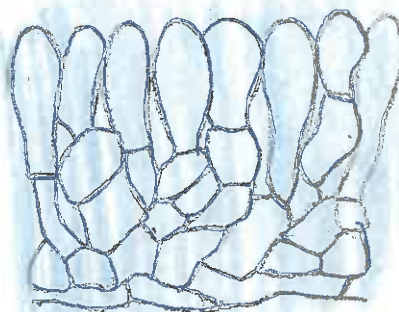
144

Sp - x 1000



143

Spore - x 8000



752

Pileus cuticle -  
x 1000

Sm-14003

*occidentalis*  
LACTARIUS ~~OBNUBILUS~~

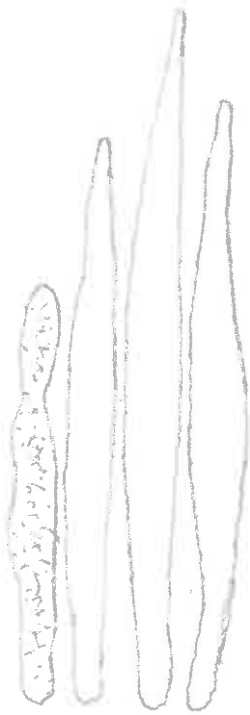
Lake Crescent, Washington, June 3, 1939

(See notes on Sm-13258.)

All micro characters as in Sm-13258 and Sm-13870.

Stipe cuticle with a very thin ixocutis; rosettes present.

*Factarius ~~ambigua~~ occidentalis*  
Sm-14003



Sp - x 1000



Ch - x 1000

[Spores as in  
Sm-13870]



Caulo -  
x 1000

Sm-17221

*occidentalis*  
LACTARIUS ~~ODORABILIS~~

Mt. Angeles, Olympics, Washington, Sept. 24, 1944.

Spores, cystidia, and pileus cuticle typical.

Sm-24365

*occidentalis*  
LACTARIUS ~~OBNUBILUS~~

Mt. Hood National Forest, Ore., Oct. 10, 1946.

Spores, cystidia, and cuticle- structure typical.

Sm-78861

*occidentalis*  
LACTARIUS ~~GENUBILIS~~ (Lasch) Fr.

PHOTO

Van Dugar Corridor, Lincoln Co., Oregon, October 9, 1970

Notes by Smith

Pileus 1-3.5 cm broad, plano-convex with a curved in margin, expanding to shallowly funnel-shaped, sometimes papillate; dingy olive over disc, olive tan near margin, becoming redder (vinaceous red in some), striate in age, glabrous, often rugulose. Context thin, concolor; taste mild. Latex whey-like, staining white paper yellow.

Lamellae pale (-?) buff to orange buff to vinaceous red, finally darker vinaceous spotted, narrow to medium broad.

Stipe 3-4 cm long, 4-6 mm thick, hollow, equal, fragile, naked, concolor or paler.

Spores white in deposit.

Notes by Hesler

Spores 7-9 x 6-7  $\mu$ . Pleurocystidia 58-74 x 6-10  $\mu$ , ventricose-acuminate; cheilocystidia 30-35 x 3-5  $\mu$ , more or less similar. Pileus cuticle a palisade of clavate cells.

LACTARIUS OCULAT<sup>us</sup>A (Pk.) Burl.

Torrey Club Bull. 34:89. 1907.

(Syn: LACTARIUS SUBDULCIS OCULATUS Pk.)

Under spruce and balsam fir, North Elba, New York, September.

New York State Mus. Bull. 67:37. 1903.

Type

Spores white to pale ivory in deposit, 7.5-9 x 6-7.5  $\mu$ , ellipsoid, warts 0.3-0.6(0.8)  $\mu$  high, bands and occasional lines forming a partial reticulum. Basidia 28-34 x 7-8  $\mu$ , 4-spored. Pleurocystidia 56-91 x 8-11  $\mu$ , ventricose, granular-spangled; cheilocystidia 33-44 x 5-6(10)  $\mu$ , ventricose to subfusoid, granular-spangled. Gill trama of undulating, subparallel hyphae. Pileus trama vesiculose. Pileus cuticle a thin gelatinous zone of repent hyphae. Stipe cuticle of repent, dry hyphae; caulocystidia 28-36 x 3-6  $\mu$ , more or less clavate, scattered or in small tufts; rosettes present. Clamp connections none.

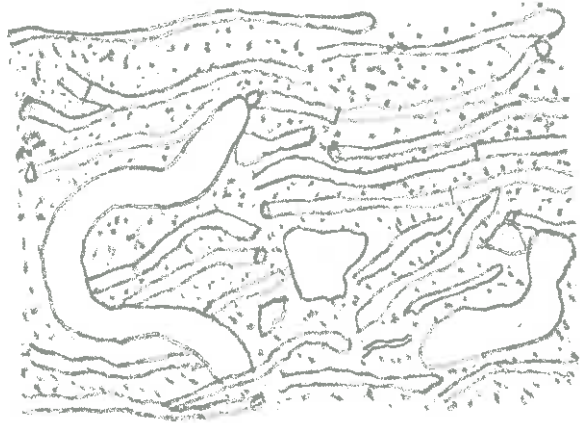
As Burlingham proposes, this is a good species (because of its cuticle).

See Peck's discussion of varieties of subdulcis beginning on p. 43, Bull. 67.



# *Lactarius subdulcis* ~~subdulcis~~ *oculatus* (Pk) Burl.

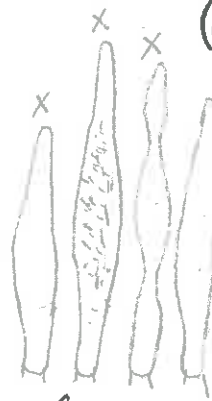
Type



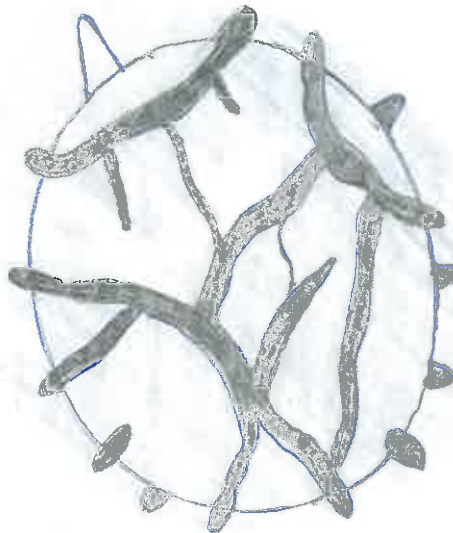
Pileus cuticle x 1000  
(an isocutis)



Sp - x 1000



Ch - x 1000



Spore - x 8000

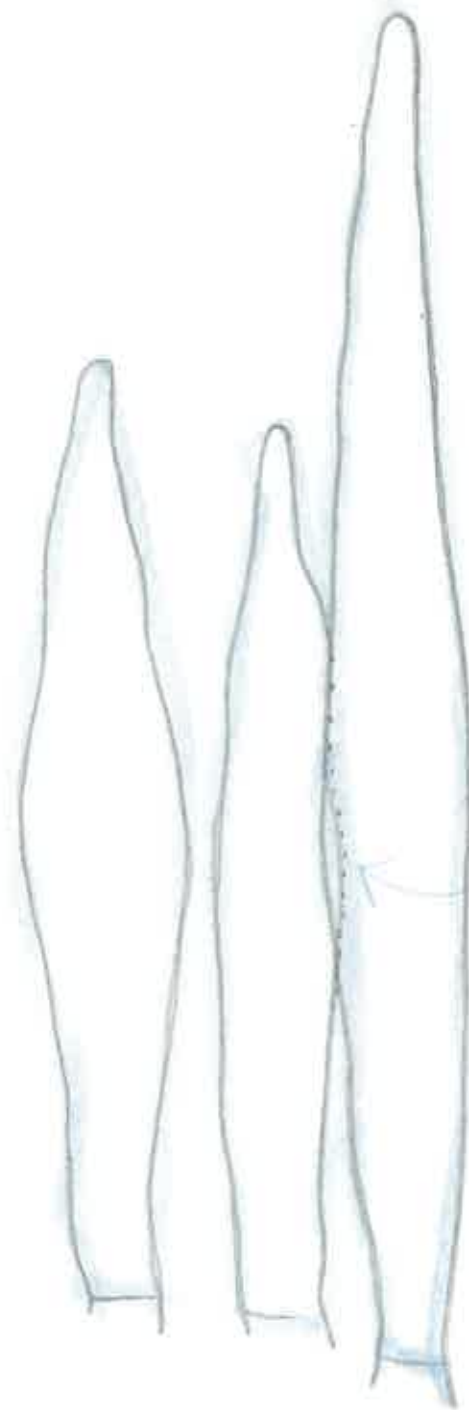
#62



Caule -  
x 1000

*L. oculatus* (Pk.) Burl.

Type



H64



H63

Ch = x 2000

Pl - x 2000

Miller - 368

LACTARIUS OCULATUS

Among needles, in hemlock-pine, Fox Forest, New Hampshire,

August 28, 1959, leg. Orson Miller

Spores and pileus cuticle typical.

Miller - 447

LACTARIUS OCULATUS

Pittsburg, New Hampshire, Orson Miller, September 2, 1959.

Spores, cuticle, etc., place it in L. oculatus.

5139

LACTARIUS OCULATUS (Pk.) Burl.

Under pine, Anderson's, Highlands, N.C., July 30, 1934.

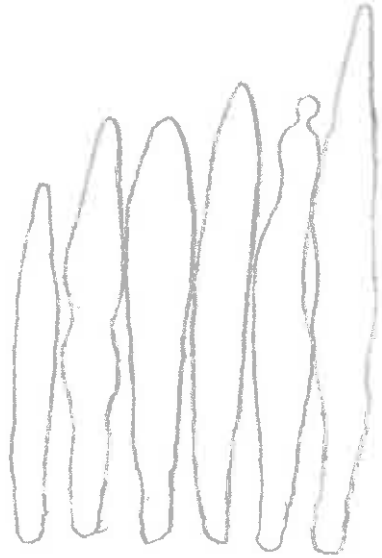
Pileus (in young stage) showing an umbo, viscid. Latex white, unchanging, mild.

Spores  $6.5-8.5(9) \times 6-7(7.5) \mu$ , warts  $0.2-0.4 \mu$  high, bands forming  $\pm$  a reticulum. Basidia  $46-52 \times 7-9 \mu$ , 4-spored. Pleurocystidia  $48-72 \times 6-10 \mu$ , mostly  $\pm$  ventricose, a few clavate, apices tapering, rarely capitate, sometimes obtuse, granular-spangled, projecting, scattered; cheilocystidia  $24-40 \times 3-6 \mu$   $\pm$  similar, widely scattered, absent in many sections; pseudocystidia  $40-48 \times 1.5-2.5 \mu$ , filamentous, on edges. Gill trama of subparallel hyphae. Pileus vesiculose. Cuticle of pileus a well-defined gelatinous zone,  $40-60 \mu$  thick, with a turf of  $\pm$  erect hyphae and pileocystidia,  $35-52 \times 3-4 \mu$ ,  $\pm$  ventricose to cylindric, at times septate. Caulocystidia  $18-40 \times 2-5 \mu$ , forming  $\pm$  a turf, the epicuticular hyphae colorless, slightly gelatinized. Clamp connections none.

Near subdulcis and camphoratus but is viscid (cuticle a gelatinous zone, not cellular).

*Pactarius oculatus* (PK.) Burl.

5139



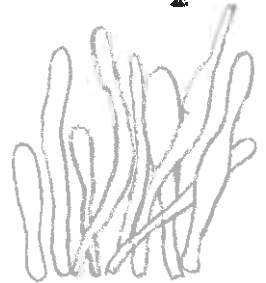
Pl. x 1000



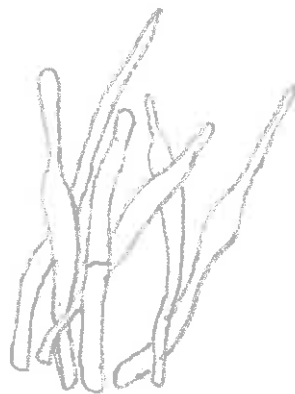
Pseudo - x 1000  
(on edge of gill)



Ch - x 1000



Caulo-tuft  
x 1000



Pileo-tuft  
(exo-cutis)  
x 1000

7564 LACTARIUS OCULATUS (Pk) Burl.

Leg. & det. G. S. Bell, 4749, as L. subdulcis, Glen Major,  
Ontario, Oct. 8, 1933

Pileus viscid!

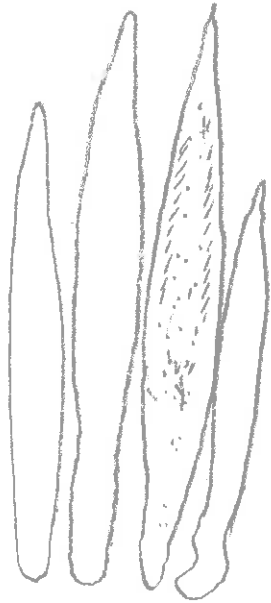
Spores white, 7-9 (10) x 6.5-7.5 $\mu$ , ellipsoid, warts 0.3-0.8 $\mu$  high, bands forming more or less a reticulum. Pleurocystidia .55-76 x 6-10 $\mu$ , fusoid, at times submucronate, granular, conspicuous; cheilocystidia 34-40 x 6-8 $\mu$ , similar. Gill trama of short-celled interwoven hyphae. Pileus trama vesiculose. Cuticle a gelatinous zone, 35-50 $\mu$  thick, resting on a brownish hypodermium. Clamp connections none. Caulocystidia 18-40 x 2-4 $\mu$ , cylindric, clavate, at times constricted and capitate, in tufts. Stipe not viscid (Burlingham says it is slightly viscid).

This appears close to subdulcis. ~~not in the same~~

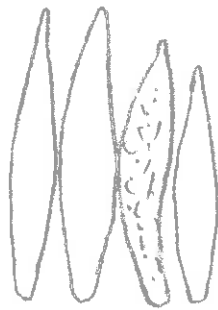
*Lactarius oculatus* (Pk) Burl.

(= *L. subdulcis* var. *oculatus* Pk)

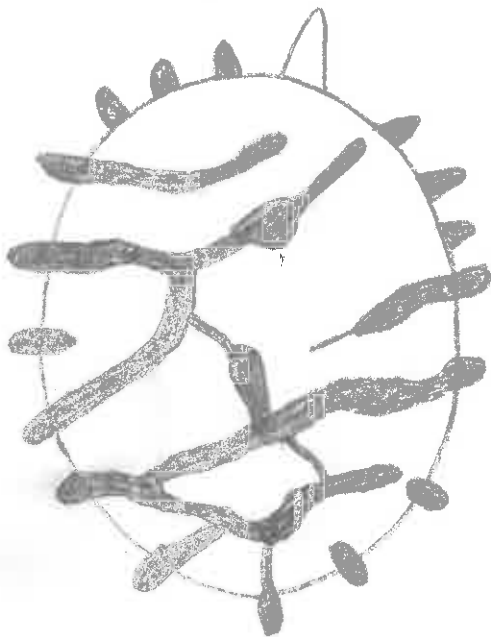
Tenn-7564 (Toronto coll., as *subdulcis*)



Pl. x 1000



Ch. x 1000



Caulo tuft -  
x 1000



10313

LACTARIUS OCULATUS

In swamp, Lake Tamagami, Ontario, Aug. 23, 1935

Spores 6-8.5 (9) x 5.5-7 (7.5) $\mu$ . Pleurocystidia 52-86 x 4-6 (7) $\mu$ , fusoid-acuminate, granular; cheilocystidia 30-44 x 3-5 $\mu$ , similar. Cuticle a gelatinous zone, 50-70 $\mu$  thick.

Labelled L. subdulcis, but the pileus has a distinct gelatinous cuticle.

10793

LACTARIUS ~~subovatus~~ *oculatus*

Clingman's Dome, August 8, 1937

Spores  $8-10 \times 6.5-7.5(8) \mu$ , with bands  $\pm$  broken, warts  $0.5-1.0 \mu$  high. Pleurocystidia  $38-90 \times 7-11 \mu$ , with an amorphous content; cheilocystidia  $27-33 \times 4-7 \mu$ , with a similar content. ~~subovatus~~  
~~in 10793~~

*Factorius scylatus.*  
~~*pubescens*~~

Tenn - 10793



Pl. x 1000



Ch - x 1000

11355

LACTARIUS OCULATUS

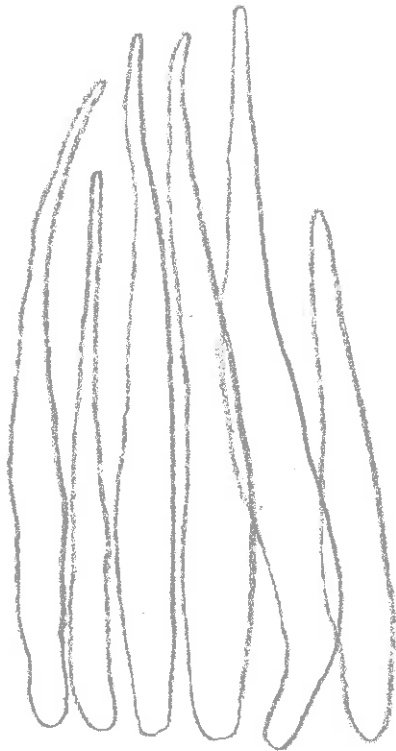
Newfound Gap, AHS-LH, September 4, 1937

Spores 8-10 x 7-8  $\mu$ , ellipsoid, warts 0.7-1.0  $\mu$  high, reticulum broken or often continuous. Basidia 28-37 x 8-9  $\mu$ , 4-spored. Pleurocystidia 62-98 x 5-9  $\mu$ , subulate to subfusoid, arising deep in the subhymenium; cheilocystidia of two types: (a) subulate or ventricose, 35-53 x 3.5-9  $\mu$ , (b) clavate, 20-28 x 7-10  $\mu$ . Pileus trama vesiculose and hyphoid. Cuticle a gelatinous zone, bearing scattered pileocystidia, 23-40 x 5-9  $\mu$ , cylindric, clavate, the wall sometimes wrinkled. Caulocystidia 15-27 x 2-4  $\mu$ , clavate, ventricose, cylindric, scattered. Clamps none.

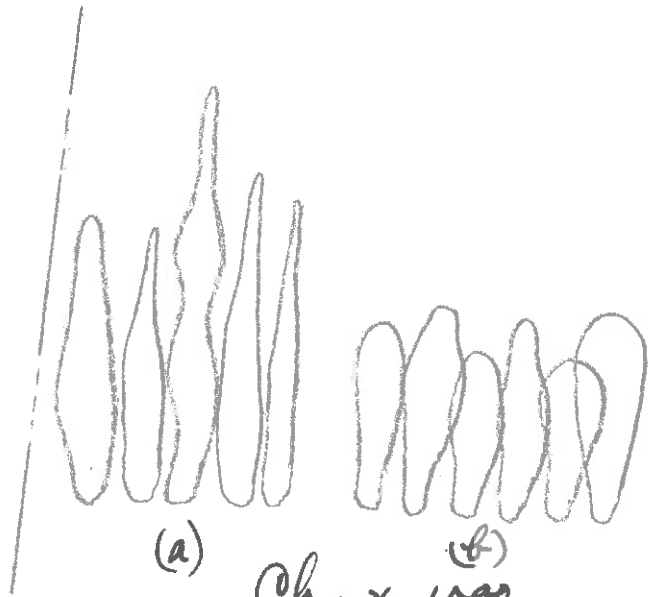
See statement by Lundell, under my notes on L. ichoratus.

*Factarium subdulois oculatus*

Tem - 11355



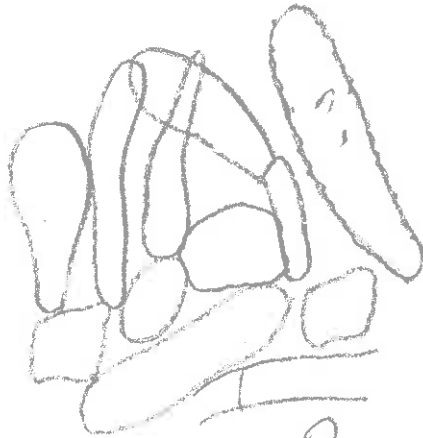
Pl - x 1000



(a)

Ch - x 1000

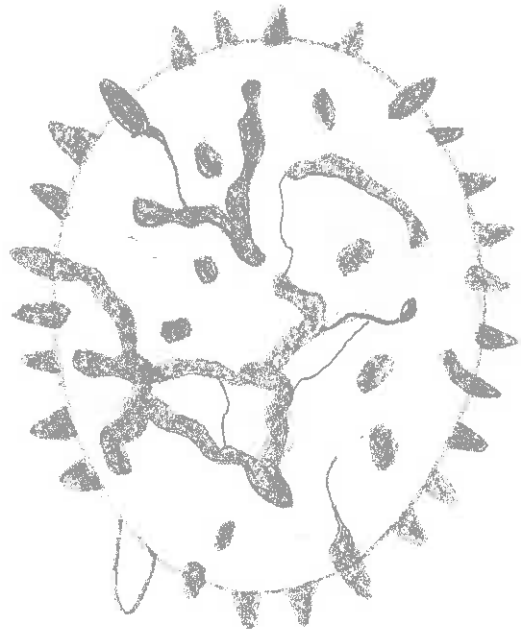
Pileo →



Cuticle - x 1000



Caulo - x 1000



Spae x 8000

14178

LACTARIUS OCULATUS

Near Mt. LeConte, May 25, 1942

Spores, cuticle (gelatinous), pleurocystidia and cheilocystidia usual.

Sm - 21930

LACTARIUS OCULATUS

Mud Lake Bog, Cheboygan Co., Michigan, August 2, 1946

Note by Smith

Pileus more or less vinaceous brown, not dark reddish brown.  
(Labelled subdulcis).

Notes by Hesler

Micro characters as in Type. Pileus cuticle an ixocutis. Stipe cuticle repent, dry, with more or less cylindric caulocystidia.

22079

LACTARIUS OCULATUS

Rabun, Georgia, August 25, 1955

Spores 8-10 x 6.5-8  $\mu$ , warts 0.6-1.1  $\mu$  high, reticulum more or less complete with some fine lines. Otherwise, as usual (cuticle of pileus gelatinous).





22079- *Lactarius* *oculatus*  
~~*medusoides*~~

23462

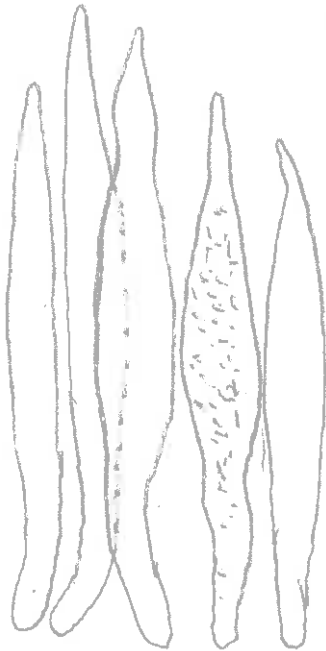
LACTARIUS OCULATUS

In pine woods, Highlands, N.C., Oct. 4, 1959.

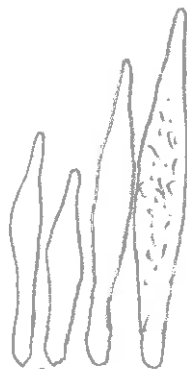
Spores 7.5-10 x 6-7.5  $\mu$ , warts 0.3-0.6  $\mu$  high, warts isolated, at times connected by bands which may form  $\pm$  a reticulum. Basidia 37-44 x 8-10  $\mu$ , (2)4-spored. Pleurocystidia 62-82 x 6-10  $\mu$ , fusoid, projecting, scattered, granular-spangled; cheilocystidia 27-48 x 4-6  $\mu$ , similar, scattered, lacking in some sections. Gill trama with hyphae and cells; subhymenium of small cells. Pileus trama vesiculose. Cuticle a zone, 60-90  $\mu$  thick,  $\pm$  gelatinous, hyphae interwoven, some terminal elements, 30-43 x 5-10  $\mu$ , ventricose, flask-shaped,  $\pm$  scattered (no turf). Caulocystidia scattered or in tufts, as in 5139, slightly gelatinous.

*Sactarius oculatus*

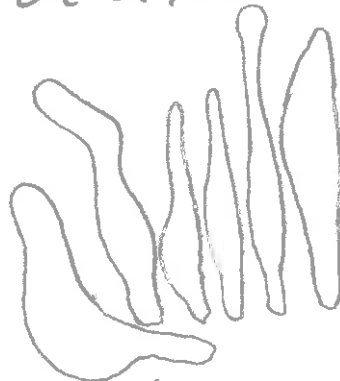
23462



Pl. x 1000



Ch. - x 1000



Piles - x 1000

27203

LACTARIUS OCULATUS

In boggy areas, Ontario, Petersen, August 2, 1962

Spores and other characters as usual (pileus cuticle a gelatinous zone).

28075

LACTARIUS OCULATUS

Coley Creek, South Carolina, July

Pileus pale brown, disc darker. Stipe concolorous.  
Latex white, unchanging, slowly becoming somewhat acrid.

Spores and other characters as usual. Cuticle  
gelatinous.

30267

LACTARIUS OCULATUS

Cades Cove, August 11, 1968.

Pileus 4-6 cm broad, very pliant, not zonate, dingy brownish (not matched), disc and slight umbo dark-brown, margin short-striate. Context white, odor and taste mild. Latex white, unchanging, not staining, mild.

Lamellae close, yellowish.

Stipe dark, brownish, stuffed, becoming hollow, tapering down.

Spores whitish or pale-ivory in deposit,  $7.5-9.5 \times 7-8 \mu$ , ellipsoid, warts  $0.4-0.7(1.0) \mu$  high, bands forming a partial reticulum. Basidia  $34-38 \times 6-7 \mu$ , 4-spored. Pleurocystidia  $52-68 \times 6-10 \mu$ , fusoid-acuminate; cheilocystidia  $30-42 \times 5-6 \mu$ , subfuseoid. Gill trama subparallel. Pileus trama vesiculose. Pileus cuticle a thin ixocutis; hypodermium brownish. Stipe cuticle a zone of slender ( $2-3 \mu$  broad) hyphae, subparallel, repent, dry; rosettes numerous. Clamp connections none.

A bit larger than usual.

30326

LACTARIUS OCULATUS (Pk.) Burl.

On soil, under fir, Clingmans Dome, September 9, 1968

Pileus 1.5-2.5 cm broad, slightly depressed with an umbo, reddish brown then "saya brown," umbo darker (blackish), glabrous, margin even or crenate. Context thin, firm, concolorous; odor and taste mild. Latex white, unchanging, mild.

Lamellae adnate, white then tinged brownish, close, narrow, rarely forking behind, lamellulae numerous.

Stipe 1-2 cm long, 3-5 mm thick, concolorous, glabrous, base white-pruinose, hollow, equal.

Spores in deposit: B-C, 8-10 x 7-8  $\mu$ , ellipsoid, warts 0.5-1.0  $\mu$  high, a few bands and fine lines, not forming a distinct reticulum. Pleurocystidia 55-100 x 7-10  $\mu$ . Pileus cuticle gelatinous.

Sm-57942

*oculatus* (Pk.) Bml,  
LACTARIUS ~~CANALICULATUS~~ sp. nov.

PHOTO

On sphagnum, Tahquamenon, Michigan, September 5, 1957

(Label says: "one of the subdulcis series")

Notes by Smith

Pileus 2-4 cm broad, often umbonate, the umbo often dark vinaceous brown, plano-depressed, "vinaceous tawny" to "Pecan brown" fading to vinaceous buff or paler, with a spreading margin, surface glabrous, azonate, moist, hygrophanous, margin translucent-striate. Context thin, vinaceous buff; odor none, taste mild. Latex white, unchanging, not staining, mild.

Lamellae short-decurrent, pallid when fresh, vinaceous buff to dull buff pink  $\frac{1}{2}$  in age, close to crowded, narrow.

Stipe 4-7 cm long, 3-6 mm at apex, concolor with cap, often hoary, viscid, hollow, readily breaking.

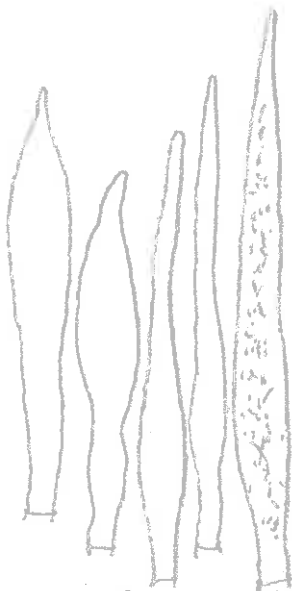
Spores white.

Notes by Hesler

Spores white in deposit, 7-9 x 6-7  $\mu$ , warts 0.2-0.5  $\mu$ , isolated or connected by lines and catenulate bands, not forming a reticulum. Pleurocystidia 48-72 x 4-9  $\mu$ , slender-fusoid, subclavate, or aciculate, acuminate, granular-spangled; cheilocystidia 23-34 x 3-5  $\mu$ , slender-ventricose, acuminate, granular. Pileus cuticle of perpendicularly disposed, interwoven hyphae, some cells enlarged, outer hyphae gelatinous--an ixocutis. Stipe cuticle repent, outer hyphae somewhat gelatinous. Clamp connections none.



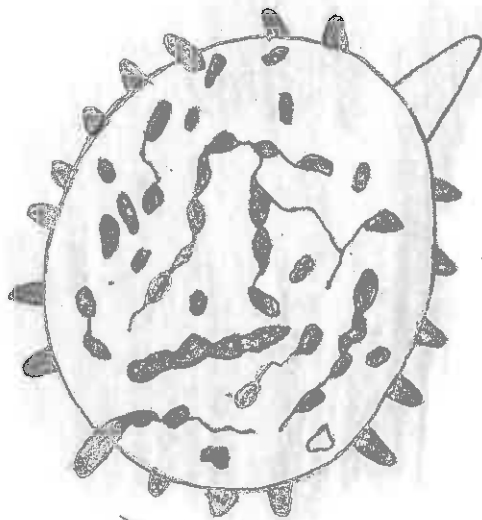
*Pactarum fructus* ~~sp. nov.~~  
~~canaliculatus~~ oculatus  
SM - 57942



Pl. - x 1000



Ch. - x 1000



788

Spor - x 8000

Sm-64448

*oculatus*  
LACTARIUS ~~flavus~~

Gregarious under white pine, Stinchfield woods, Michigan, September 25, 1961.

Notes by Smith

(Looks like a small L. rufus)

Pileus 3-4 cm broad, plano-depressed with a slight central papilla, becoming broadly vase-shaped, glabrous, surface lubricous when wet, but <sup>(but, see below)</sup> not truly viscid, color a dingy mahogany brown (near "Kaiser brown"), paler vinaceous brown on margin which at times is slightly striate, fading to vinaceous tan. Context concolor with surface; taste slowly slightly acrid, odor mild. KOH and  $\text{FeSO}_4$  - 0. Latex whey-like.

Lamellae decurrent, pale dingy vinaceous tan gradually flushed/- darker vinaceous but also spotting darker when injured, in age more or less concolor with cap, close, narrow, edges even.

Stipe 3-5 cm long, 3-6 mm at apex, hollow, fragile, enlarged downward, or equal, nearly concolor with cap below, pallid vinaceous buff at apex, covered by a pallid evanescent bloom with vinaceous hairs binding it to pine needles.

Spore deposit white to creamy white.

Notes by Hesler

7-  
Spores  $9.5 \times 6.5-8 \mu$ , warts  $0.3-0.7(1.0) \mu$ , bands and branches forming a partial reticulum. Basidia ~~44-48~~  $44-48 \times 8-10 \mu$ , 4-spored.

5-8

Pleurocystidia 40-88 x ~~110~~ u, ventricose-acuminate; cheilocystidia 28-37 x 3-6 u, ventricose, apices more or less tapering to acuminate.

Gill trama of narrow, short-celled, more or less interwoven hyphae.

Pileus cuticle a zone <sup>gelatinous to subgelatinous hyphae - an ixocutis</sup> of repent hyphae ~~at times (rarely?) the very~~

~~surface hyphae appear subgelatinous (surface lubricous);~~ hypoderm

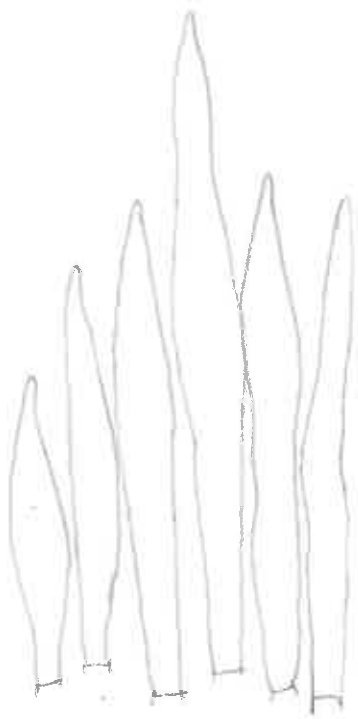
indistinct. Stipe of repent, periclinal hyphae, some uplifted and the

terminal elements as subcylindric caulocystidia; rosettes present.

<sup>Connections</sup>  
Clamp: none.

~~Although small, it seems best to include~~

*Pactarins* ~~rufus~~ *oculatus*  
Sm - 64448



Pl - x 1000



Ch - x 1000



Caule -  
x 1000

*oculatus*

Sm-64700 LACTARIUS ~~PSEUDO-OCULATUS~~ sp. nov.

PHOTO

Gregarious on moss, Mud Lake Bog, Wash. Co., Mich.,

October 14, 1961 (labelled L. theiogalus)

Notes by Smith

Pileus 1-3 cm broad, broadly convex with a low conic umbo, becoming shallowly depressed (then with or without the umbo), dark vinaceous-brown on disc and umbo, paler toward margin (near "Pecan brown" or "Hazel," "onion skin pink" or paler over marginal area), margin arched or plane, surface somewhat viscid, hygrophanous, fading except umbo which remains dark as in L. oculatus, not striate, not rimulose in age. Context thin, fragile; odor slight; taste faintly peppery. Latex milk-white, unchanging but wounds stained yellow.

Lamellae decurrent, "pale vinaceous pink" becoming somewhat darker, not spotted, close, narrow, edges even.

Stipe 2-5 cm long, 1.5-3 mm thick, equal, or slightly enlarged downward, hoary at first, soon naked, moist more or less concolor with cap below, concolor with gills above, hollow, fragile readily collapsing.

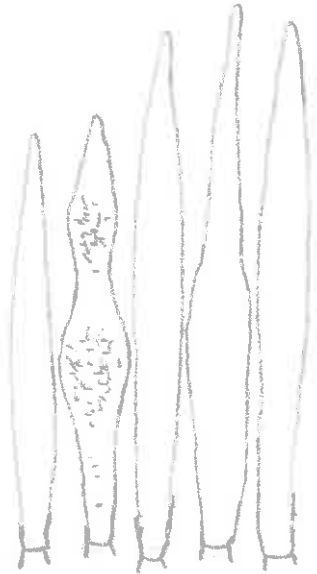
Notes by Hesler

Spores buff in deposit, 8-10.5 x 7-8  $\mu$ , ellipsoid, warts 0.3-0.7  $\mu$  high, bands  $\pm$  more or less catenulate and lines connecting most warts, others isolated, no reticulum or incomplete. Basidia 30-34 x 6-7  $\mu$ , 4-spored. Pleurocystidia 54-72 x 5-10  $\mu$ , ventricose or fusoid, granular-spangled;

cheilocystidia 25-32 x 5-6  $\mu$ , subfusoid or obclavate, granular. Gill trama vesiculose. Pileus trama vesiculose. Pileus cuticle an ixocutis, about 100  $\mu$  thick, of interwoven more or less perpendicularly disposed, repent hyphae, the outer layer (10-30  $\mu$  thick) of surface gelatinous hyphae. Stipe cuticle of interwoven, repent, dry hyphae; no caulocystidia found; rosettes present. Clamp connections none.

*Plectarius ~~praelatus~~ oculus sp. nov.*

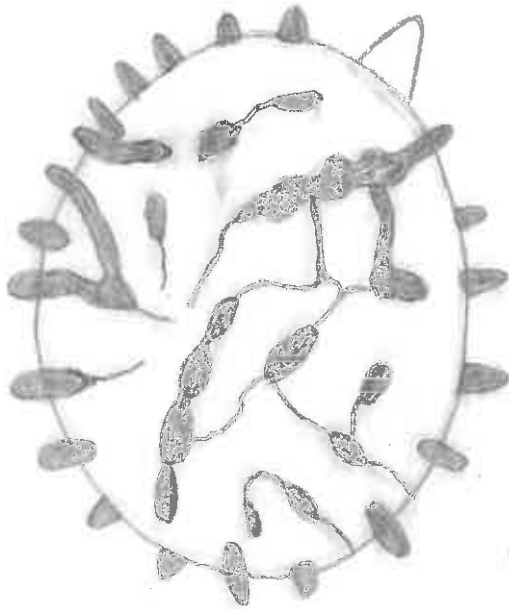
Sm - 64700



Pl. x 1000



Ch. x 1000



Spore - x 8000

Sm-64742

LACTARIUS ~~MAVIA~~ OCULATUS sp. nov.

PHOTO

Mud Lake Bog, Mich., October 23, 1961.

Smith says latex did not turn yellow; taste mild. (He does not say whether the latex stains the flesh yellow, as in Sm-64700, which is pseudo-oculatus. His 64700 and 64742 are structurally the same and neither is theiogalus, which has a cellular cuticle.)



Sm-77207

LACTARIUS ~~MAWII~~ OCULATUS

N. W. Corner, Montmorency Co., Mich., Aug. 19, 1967

Smith says taste peppery, spores buff.

Notes by Hesler

(Resembles Sm-64700 and 64742)

Spores 7-9(9.5) x 5-6  $\mu$ , warts 0.3-0.5, with bands and lines, scarcely a reticulum. Pleurocystidia 50-67 x 5-7  $\mu$ , cylindric or subfusoid, acuminate; pseudo present; cheilocystidia 27-33 x 4-5  $\mu$ , subfusoid, acuminate. Pileus cuticle interwoven, repent, gelatinous. Stipe <sup>cuticle of dry,</sup> ~~a thin~~ <sup>repent hyphae;</sup> ~~thin~~ <sup>subgelatinous</sup> ~~typical~~ <sup>typical</sup> ~~wool~~ <sup>wool</sup> cortex with rosettes.

Sm-78298

*oculatus* (Pt.) Burl.  
~~LACTARIUS PROPINQUUS~~ sp. nov.

Gregarious under larch and spruce, Mud Lake Bog, Washington County,  
Michigan, October 14, 1969

Notes by Smith

Pileus 1-3 cm broad, plano-depressed, conic-papillate which remains black when dried, azonate, moist and hygrophanous, gelatinous, when moist the margin "light vinaceous cinnamon," "vinaceous cinnamon," the papilla "Mikado brown" or darker, surface fading to pale "vinaceous buff," when moist the margin of mature pilei short-striate. Context thin and fragile, pale vinaceous buff; taste mild or nearly so. Latex, milk-like to more or less whey-like, unchanging, but gills spotting slowly, staining a linen handkerchief yellow, taste mild.

Lamellae short-decurrent, close, narrow, pallid (vinaceous-pallid), becoming flushed dingy vinaceous-tan, in age dark.

Stipe 2-4 cm long, 4-8 mm thick above, nearly equal, concolorous with the center of the pileus, or at first "vinaceous buff," naked, moist, not spotted.

Spore deposit "pale pinkish buff."

Notes by Hesler  
Spores "pale pinkish buff" in deposit, 7-9 x 5.5-7  $\mu$ , warts 0.4-1.0  $\mu$  high, bands and branches nodulose, forming a partial reticulum. Basidia 36-40 x 7-9  $\mu$ , 4-spored. Pleurocystidia 57-92 x 6-10  $\mu$ , ventricose, long-acuminate; cheilocystidia 28-37 x 3-5  $\mu$ , subventricose to subfusoid. Gill trama of narrow, more or less interwoven hyphae. Pileus cuticle an ixocutis, a zone of more or less elongated to irregularly-shaped, inflated hyphal cells; hypodermium obscure or absent. Stipe cuticle of dry, repent hyphae; rosettes present. Clamp connections none.

*Lactarius oculatus*  
~~*propinquus* sp. nov.~~

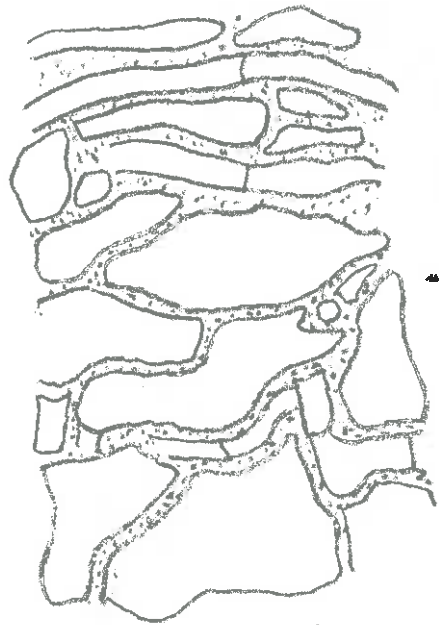
Sm-78298



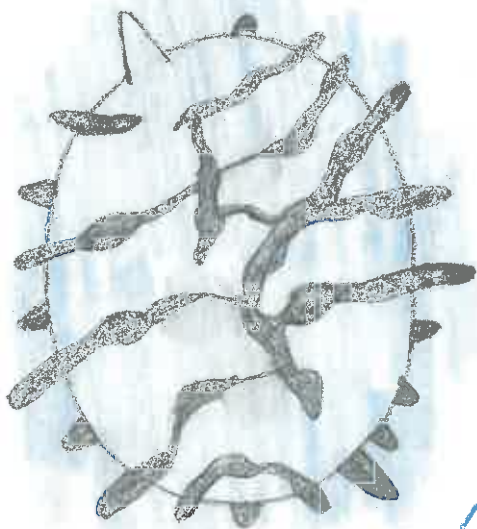
Sp x 1000



Ch x 1000



Pileus cuticle  
x 1000



Spore x 8000

1256

LACTARIUS OLIVACEO-BRUNNEUS

Sm-9922

Keener House, near Park Headquarters, Gatlinburg, Tennessee, August 8,  
1938 (labelled: L. trivialis).

~~Type~~

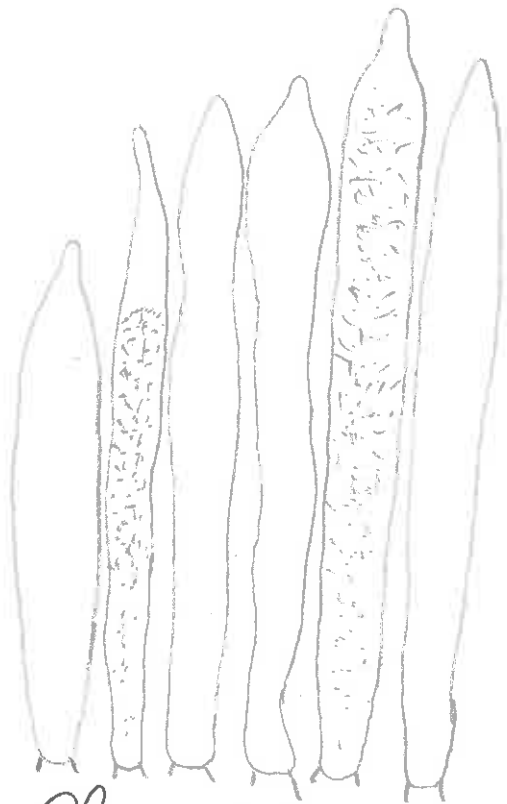
Pileus 4-9 cm broad, convex, soon depressed.

Stipe 4-9 cm long, 6-12 mm thick.

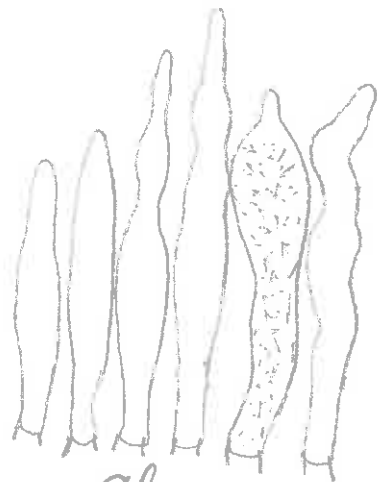
Spores 12-15 x 10-12  $\mu$ , broadly ellipsoid to subglobose, warts 1-2.5  $\mu$  high, with a webbing, bands broad not forming a reticulum. Basidia 62-74 x 12-14  $\mu$ , 4-spored. Pleurocystidia 68-120 x 7-12(15)  $\mu$ , subcylindric to subclavate, apices subacute to obtuse, or mucronate, granular-spangled, numerous; cheilocystidia 36-58 x 5-10  $\mu$ , somewhat variable: fusoid, ventricose, cylindric to clavate and at times constricted, granular-spangled. Gill trama interwoven. Pileus trama slightly vesiculose. Pileus an ixocutis, the hyphae at times subgelatinous; with more or less imbedded pileocystidia, 60-70 x 4-5  $\mu$ , more or less filamentous, granular-spangled. Stipe cuticle a thin ixocutis; no hypodermium, and no rosettes. Clamp connections none.

*Factarius olivaceo-brunneus*  
~~*megasporus* sp. nov.~~

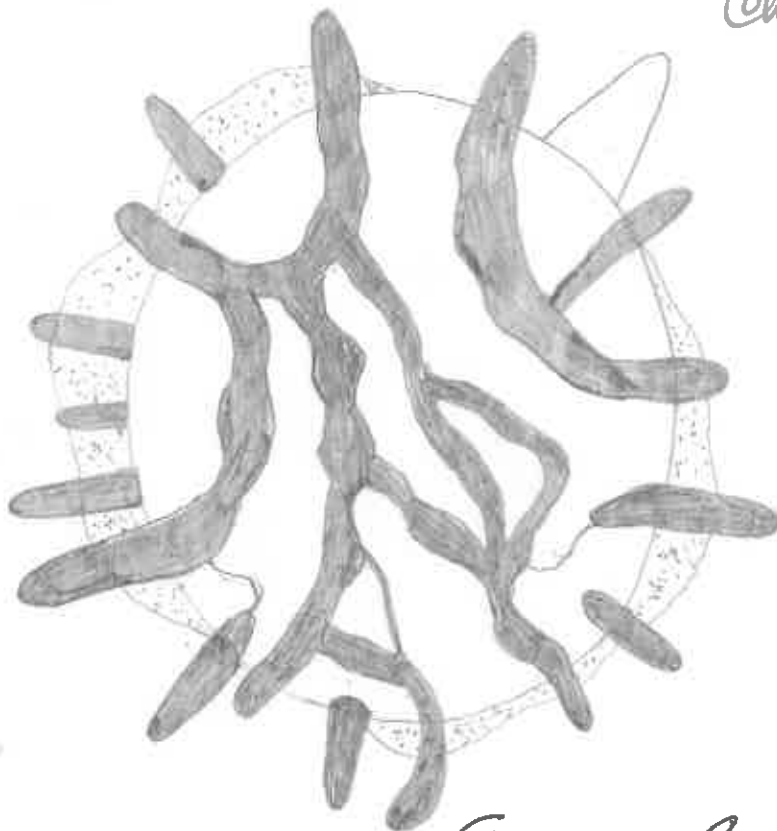
Sm-9922



Pl- x 1000



Ch- x 1000



Spore - x 8000



Pileo -  
x 1000

11538 LACTARIUS OLIVACEOBRUNNEUS ~~var. SUBDISTANS var. nov.~~

On soil, mixed hemlock-deciduous woods, near Mt. LeConte,  
June 19, 1938.

Pileus 5-7 cm broad, disc depressed, plum-colored, azonate, glabrous, viscid, margin even. Latex white, unchanging, acrid.

Lamellae adnate-decurrent, nearly or quite subdistant, rather broad, whitish then ochraceous, staining brown.

Stipe 5-8 cm long, 8-12 mm thick, equal, becoming hollow, glabrous, viscid, not spotted.

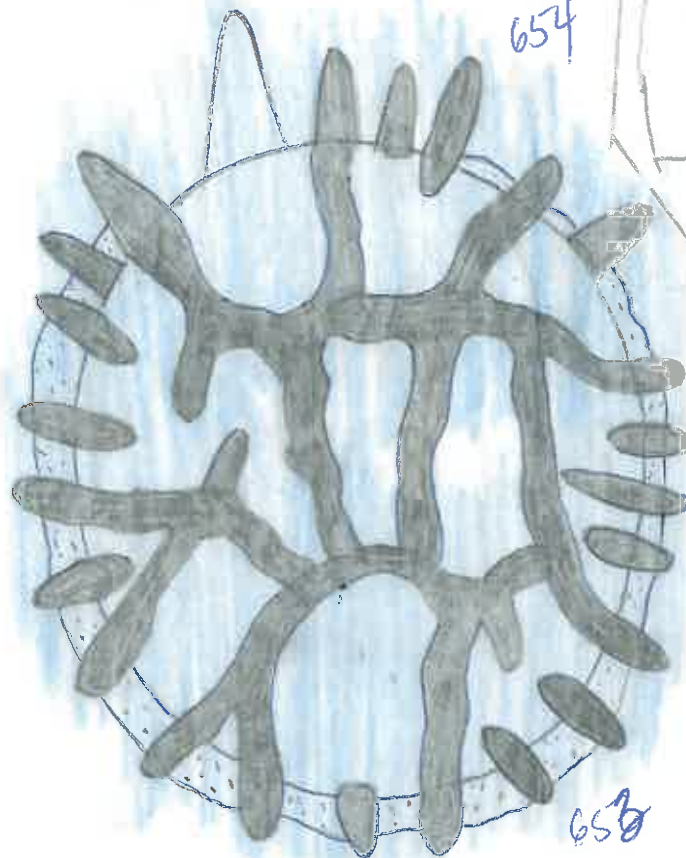
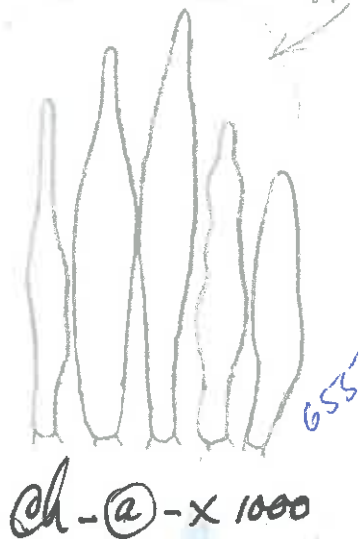
Spores (8) 10-14 x 9.5-13  $\mu$ , subglobose to globose, often broadly ellipsoid, warts numerous and coarse, 0.8-2.5  $\mu$  high, with broad bands forming more or less a reticulum, with a more or less evident webbing. Basidia 48-62 x 12-14  $\mu$ , 4-spored. Pleurocystidia 63-118 x 7-16  $\mu$ , subulate to subfusoid, more or less granular, scattered; cheilocystidia of two types: (1) 37-52 x 5-8  $\mu$ , fusoid or more or less flask-shaped (more common); (2) 38-53 x 4-5  $\mu$ , more or less cylindric to subclavate, more or less capitate, sometimes constricted. Gill trama vesiculose. Pileus and stipe cuticle a gelatinous zone, 100-200  $\mu$  thick, hyphae repent, interwoven. Clamp connections none.

*Saccarius furialis* var. *macrosporus* var. nov.  
*divacessbrunneus* var. *subdistans*

Term - 11538

Copy  
both

Diagn.  
Copy only the  
4 marked



~~12765~~

12765 LACTARIUS OLIVACEOBRUNNEUS ~~var. OLIVACEOBRUNNEUS sp. and~~  
~~var. nov.~~

On soil, Mt. LeConte, August 4, 1940

Pileus 4 cm broad, convex-expanded, slightly depressed, "olive brown," disc slightly ochraceous to buff, azonate, viscid, slightly fibrillose, even. Context whitish, thin; acrid. Latex white, unchanging, acrid, staining the lamellae greenish.

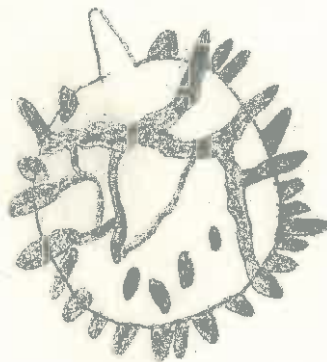
Lamellae adnate-decurrent, close, medium broad, whitish then creamy-buff, stained greenish by the latex .

Stipe 5 cm long, 11 mm thick, clay-color, glabrous, slightly viscid, equal, hollow.

Spores 10-13(14) x 8.5-11  $\mu$ , ellipsoid to subglobose, warts conspicuously coarse and numerous, 1.0-2.0  $\mu$  high, bands forming complete or incomplete, reticulum; with some free-end branches and fine lines, and with more or less evident webbing. Pleurocystidia 53-64 x 11-15  $\mu$ , clavate or ventricose, apices blunt, or tapering or button-capitate; cheilocystidia 32-38 x 6-8  $\mu$ , subcylindric, clavate, or ventricose, apices obtuse or subacute. Gill trama of sub-parallel, short-celled hyphae. Pileus trama vesiculose. Pileus cuticle a broad (300-400  $\mu$ ) zone of interwoven, gelatinous, slender (2-3  $\mu$ ) hyphae, --an ixocutis. Cuticle of stipe a zone of colorless, more or less interwoven slightly gelatinous hyphae, --an ixocutis, bearing caulocystidia; rosettes present in stipe cortex. Clamp connections none. Lactifers numerous in cuticle, pileus trama, and gill trama.

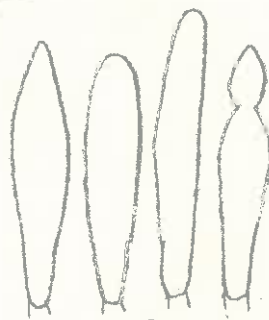


*Lactarius olivaceobrunneus* sp. nov. <sup>var. olivaceobrunneus</sup>  
No. 12765

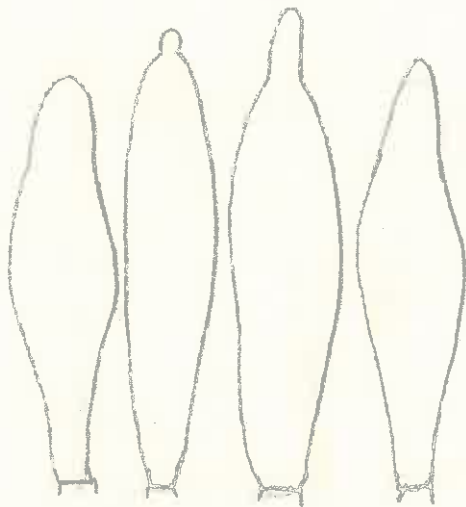


X 3000

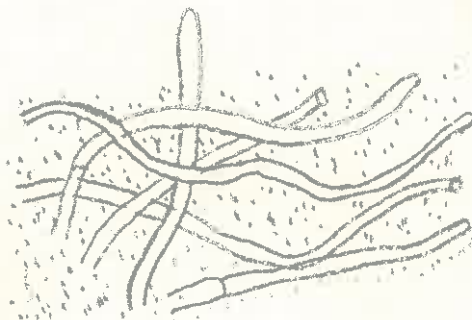
closer together



Ch - x 1000



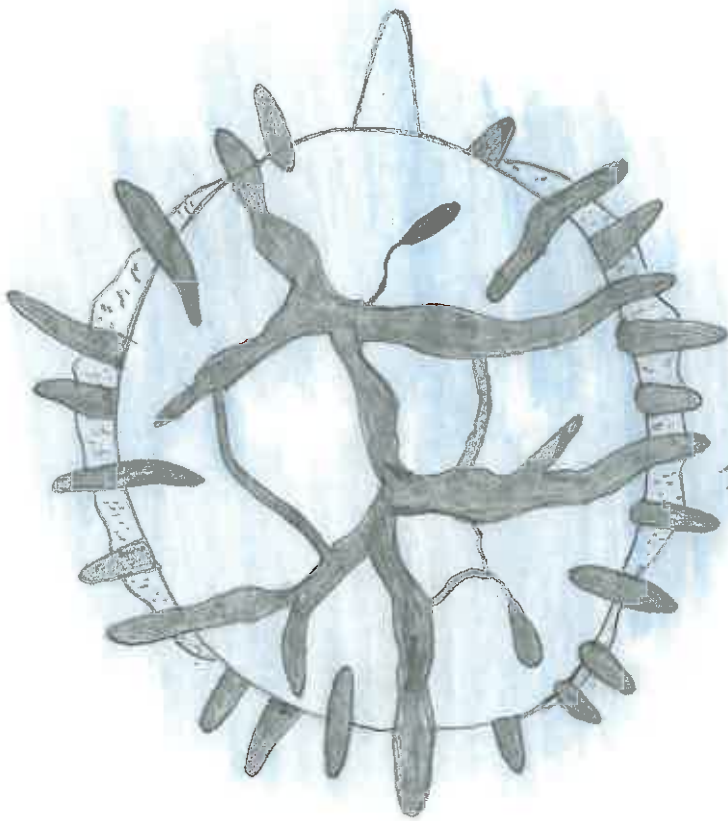
Pl - x 1000



[more, another  
sheet]

Exocutis - x 1000

~~var. olivaceobrunneus~~  
*Plectarins olivaceobrunneus* sp. nov. 1  
12965



Cauls -  
x1000

725

Spore - x 8000

17630

*ochraceobrunneus* sp. nov.  
LACTARIUS ~~TRIVIALIS~~ var. ~~COGNATUS~~ var. nov.

On soil, in deciduous-coniferous woods, near Park Headquarters,  
GSMNP, June 16, 1946.



Pileus 5-7 cm broad, depressed, livid to plum-colored, disc somewhat ochraceous, viscid, azonate, glabrous, margin even. Context thin, firm, white; taste acrid. Latex white, drying pale greenish, staining the gills brownish, acrid.

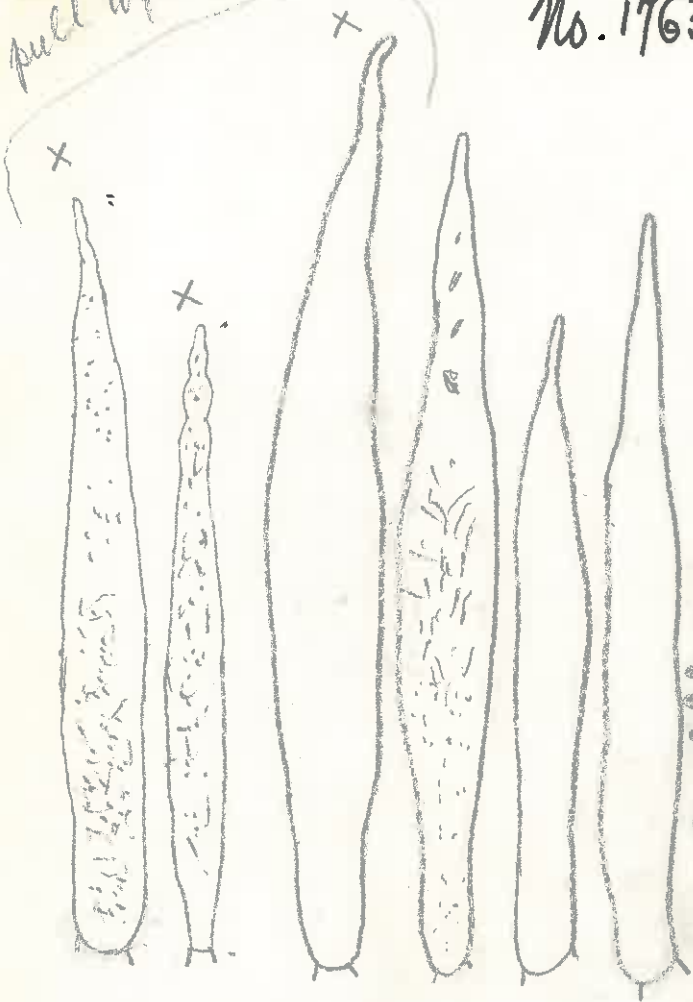
Lamellae adnate, close, medium broad to narrow, cream color, staining brownish by the latex, edges even or nearly so.

Stipe 4.5-6 cm long, 8-10 mm thick, concolorous, ochraceous-buff spotted, viscid, glabrous, equal, hollow.

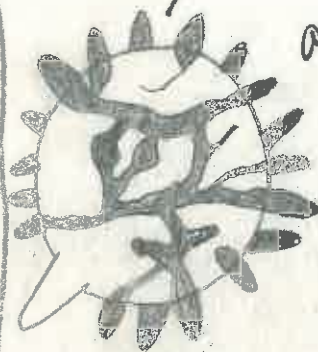
Spores in deposit yellow, 10-14 x 8.5-12  $\mu$ , globose, subglobose, or broadly ellipsoid, warts stout, 1-2.5  $\mu$  high, with coarse, broad bands scarcely forming a reticulum. Basidia 50-71 x 10-16  $\mu$ , 2-4-spored. Pleurocystidia 83-123 x 7-16  $\mu$ , conspicuous, ventricose, fusoid to subfusoid, or obclavate to acuminate, apex tapering; cheilocystidia similar, smaller, 50-63 x (4)7-10  $\mu$ . Gill trama of interwoven to subparallel hyphae. Pileus trama heteromerous. Pileus cuticle of repent, more or less periclinally disposed, slender (2.5-5  $\mu$ ), gelatinous, sparsely branched, somewhat nodulose hyphae, imbedded in a gelatinous matrix forming an ixocutis, 180-350  $\mu$  thick. Cuticle of stipe an ixocutis, similar to that of the pileus but thinner, 60-100  $\mu$ ; rosettes none. Lactifers few. Clamp connections none.

*Pactarins* *trivialis* var. ~~*cognatus*~~  
*olivaceobrunneus* sp. nov.  
 No. 17630

pull together, closer



Pl - x 1000

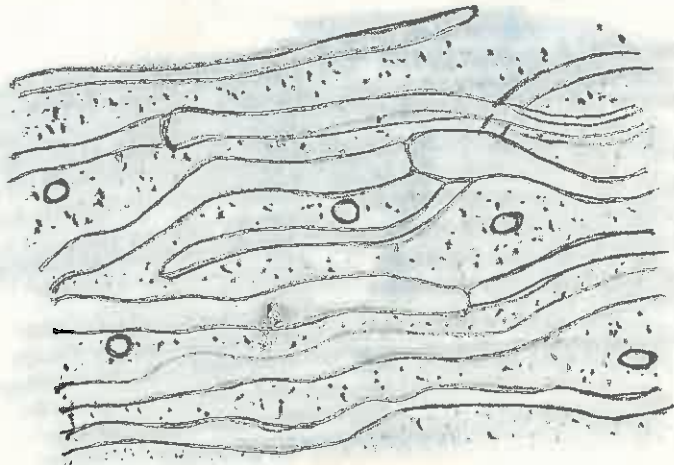


x 3000

See another  
 sheet for an  
 additional drawing -



Ch - x 1000

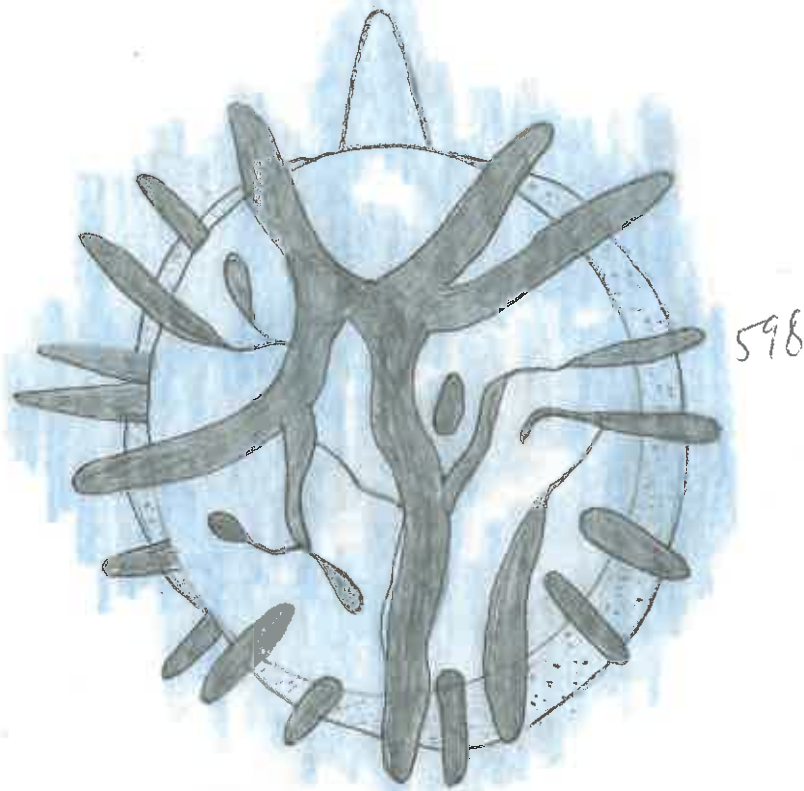


1756

Cutis - x 1000

*divaricobrunneus*  
*Factarius* ~~*truxalis*~~ var. *cognatus* var. nov.

17630



Spore - x 8000

26634

*olivaceobrunneus* ~~COGNATUS var. nov.~~  
LACTARIUS TRIVIALIS var. ~~MACROSPORUS~~

On humus, hardwood forest, Macon Co., N. C., leg.

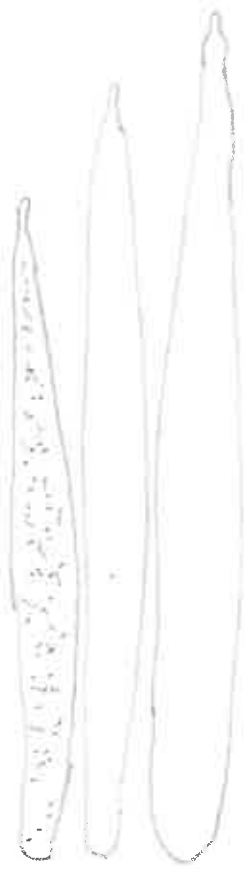
Petersen (named it vietus), July 19, 1963.

Pileus (apparently) more or less drab when fresh, viscid, glabrous. Latex not described (labelled L. vietus, in which the latex is white, becoming grayish-green on drying). Neuhoﬀ gives spores smaller, 8-9.5 x 6.5-7.5  $\mu$ .

Spores 10-14 x 8-11  $\mu$ , ellipsoid, warts 1-2.5  $\mu$  high, with lines and more or less nodulose bands forming a partial to broken reticulum. Basidia 47-58 x 11-14  $\mu$ . Pleurocystidia 65-112 x 7-11  $\mu$ , fusoid to subulate; cheilocystidia 28-65 x 4-5  $\mu$ , fusoid. Pileus cuticle an ixotrichodermium (some of the hyphae are so disposed (erect) as to display the features of a trichodermium, others are repent, and still others are between an erect and repent position). Stipe cuticle a gelatinous zone, hyphae interwoven and repent; rosettes present. Clamp connections none.

~~oligoneurum~~  
~~Lactarius ruralis var. cognatus var. nov.~~  
~~angularis sp. nov.~~

26634



Pl - x 1000



Ch - x 1000

28085

*olivaceo-brunneus*  
LACTARIUS ~~MEGASPORUS~~ sp. nov.

Coley Creek, S.C., Oconee County, July 24, 1965

Pileus 7 cm broad, depressed-umbilicate, buff with lavender <sup>areas</sup> spots,

zonate, viscid. Latex white, drying and staining olive-brown, acrid.

Lamellae buff, staining olive-brown where injured, close or nearly subdistant, rather narrow.

Stipe 8 cm long, 11 mm thick, buff, viscid, not spotted.

Spores 10-15 x 9-13  $\mu$ , globose, subglobose, or broadly ellipsoid, a few broad bands, some fine lines, warts 1-1.7  $\mu$  high, with webbing. Basidia 60-72 x 12-16  $\mu$ , 4-spored. Pleurocystidia 106-127 x 10-18  $\mu$ , subulate, apices tapering, often acute; cheilocystidia of two general types: (1) aciculate or subfusoid, 42-60 x 5-6  $\mu$ , granular; (2) clavate, vesiculose, flask-shaped, 18-30 x 4-7  $\mu$ . Gill trama interwoven and vesiculose. Pileus trama vesiculose. Pileus cuticle of several layers of repent brown hyphae, the outermost hyphae more or less gelatinous (somewhat of a thin ixocutis). Stipe cuticle similar to pileus cuticle (more or less a thin ixocutis); rosettes present.

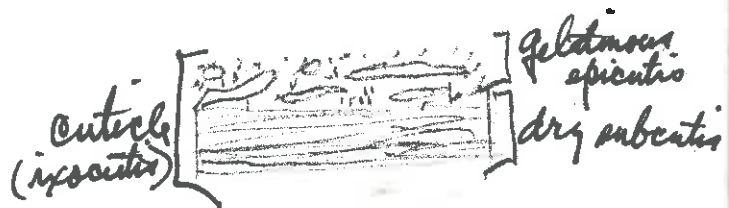
The cuticular hyphae of both the stipe and pileus are gelatinous, even if only a thin zone; this feature places this species in the Triviales. It appears near L. mucidus and fumeacolor, but is buff-colored when fresh, and has much larger spores than either of the other two species.

*L. L. trivialis* var. macrosporus!

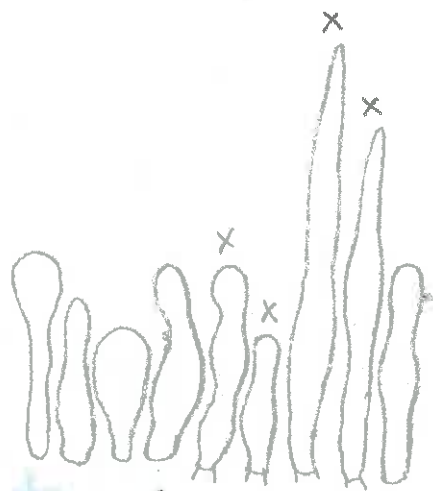


*Sectarius olivaceo-brunneus*  
~~*megaspore*~~ sp. nov.

No. 28085

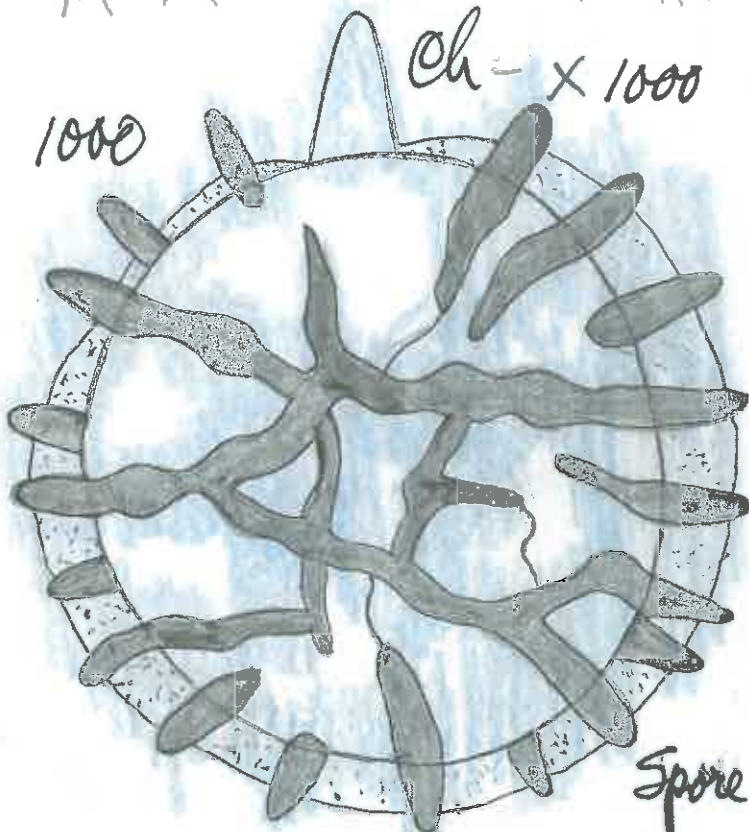


Pileus cuticle  
 (diagram)



Pl - x 1000

Ch - x 1000



603

Spore - x 8000

~~var. olivaceobrunneus~~

28408

LACTARIUS OLIVACEOBRUNNEUS sp. nov. <sup>^</sup>

— Type

leg. Olexia, Pisgah Nat. Forest, N.C., July 31, 1964

Pileus 3-7 cm broad, convex, slightly depressed; smoky-drab, grayish-lilac, sometimes the disc ochraceous, viscid, glabrous, azonate, even. Context whitish, on exposure to air becoming grayish-green, acrid. Latex white, unchanging, staining flesh and gills greenish.

Lamellae adnate to subdecurrent, whitish then cream-colored, close, rather narrow, lamellulae present.

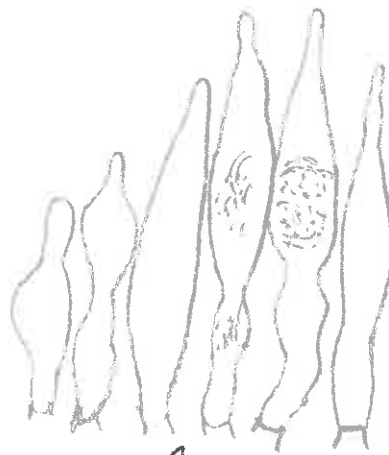
Stipe 4-6.5 cm long, 6-9 mm thick, concolorous or paler, viscid, glabrous, solid, equal.

Spores 9.5-14 x 8.5-11  $\mu$ , ellipsoid, warts 0.7-1.5  $\mu$  high, often rather slender, with irregular bands and fine lines, reticulum slight to moderately developed. Basidia 55-63 x 10-15  $\mu$ , 4-spored. Pleurocystidia 62-104 x 7-14  $\mu$ , ventricose, at times subulate or obclavate, apices tapering, granular; cheilocystidia 28-55 x 7-8  $\mu$ , similar. Gill trama of interwoven, short-celled hyphae. Pileus trama vesiculose. Cuticle an ixocutis, on an hypodermium, hyphae interwoven, more or less repent, sometimes the terminal elements cylindric, occasionally constricted and capitate. Stipe cuticle an ixocutis; caulocystidia 43-68 x 6-9  $\mu$ , ventricose, more or less constricted, absent in some sections. Rosettes present in stipe cortex. Clamp connections none.

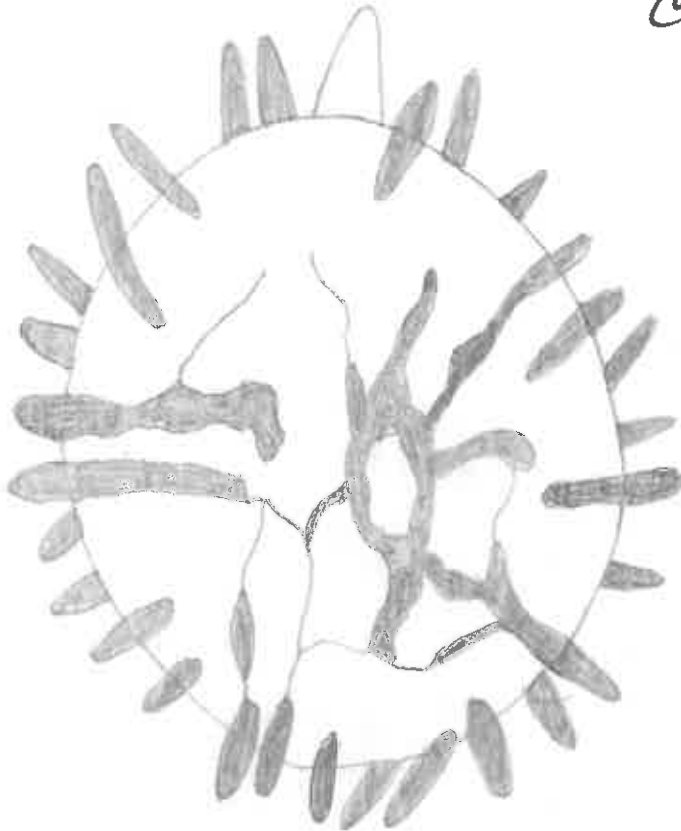
*Factarium* ~~minima~~ ~~var. macrospora~~  
 Tenn-28408 *olivaceobrunnea*  $\lambda$   
 var. *olivaceobrunnea*



Sp. - x 1000



Ch - x 1000



Spore - x 8000



Pileo-  
x 1000



Carb - x 1000

LACTARIUS OLIVACEOBRUNNEUS sp. nov.

30170

On soil, hemlock woods, Roaring Fork, July 31, 1969

Pileus 7 cm broad, color not matched (smoky olivaceous or livid) with tints of dingy ochraceous, viscid, soon dry, glabrous, even. Context white, firm; odor mild, taste acrid. Latex white, unchanging, staining gills brownish, acrid.

Lamellae adnate, near "avellaneous," forking midway, lamellula numerous.

Stipe pallid, not spotted, hollow, viscid.

Spore deposit: creamy-yellow; spores 9.5-12 x 9-12  $\mu$ , globose or subglobose, warts 0.5-1.5  $\mu$ , coarse, often with webbing, bands and branches forming a partial to complete reticulum. Pleurocystidia 72-120 x 7-10  $\mu$ , slender-ventricose-acuminate; cheilocystidia 30-48 x 4-7  $\mu$ , ventricose or cylindric. Pileus cuticle an ixocutis. Stipe cuticle an ixocutis, rosettes present.

olivaceobrunneus var. ~~phallostemon~~ var. nov.

35207

LACTARIUS ~~TRIVIALIS~~ var. ~~MACROSPORUS~~ var. nov.

Under deciduous, Indian Creek, August 7, 1969

Pileus 10 cm, faintly plum-colored, central portion ochraceous, azonate, viscid. Latex white, unchanging (drying white), staining brown, acrid.

Lamellae whitish with a pink cast, then ochraceous, close or nearly subdistant, staining brown.

Stipe 10 cm x 15 mm, viscid, ochraceous, stained brown (in spots).

Spore print failed; spores 9.5-14.5 x 9-12.5  $\mu$ , globose to subglobose or broadly ellipsoid, warts coarse, 0.7-1.8  $\mu$  high, with webbing, bands and branches forming a partial or nearly complete reticulum. Basidia 57-66 x 12-15  $\mu$ , 4-spored. Pleurocystidia 62-106 x 10-12  $\mu$ , subventricose-acuminate; cheilocystidia 35-48 x 5-8  $\mu$ , similar. Pileus cuticle an ixocutis. Stipe cuticle an ixocutis.

Cf. L. megasporus

36086

LACTARIUS OLIVACEO-BRUNNENS ~~var. SUBDISTANS~~

Cherokee Natl. Forest, Erwin, Tenn., leg. Olexia,

Aug. 7, 1973

Pileus plum-colored(wet) near "drab"(dry) viscid.  
Latex white, copious, unchanging, staining brown,  
acid.

Lamellae adnate to subdecurrent, whitish then  
dull yellowish, subdistant, broad, lamellulae short,  
numerous.

Stipe 7 cm, x 13 mm., pale ochraceous, viscid,  
stuffed, equal.

Spores pale cream in deposit; 9.5- 14.5 x 9-13 $\mu$ ,  
warts coarse, 1-2 $\mu$  high, bands broken or at times  
forming a nearly complete reticulum.

*olivaceo-nubrinus* sp. nov.

Sm-16634

LACTARIUS ~~GRISEOVIRIDIS~~ sp. nov.

Noisy Creek, Baker Lake, Washington, September 5, 1941

Notes by Smith

Pileus (2)4-10(12) cm broad, convex with an inrolled pubescent margin, expanding to plane or shallowly depressed, surface glabrous and viscid, zonate, "dark olive" on disc and deep olive toward the "dark olive buff" margin, paler in age, with green and Isabella color alternating zones, in age fading out and nearly azonate, drying dark fuscous-olive. Context thick and rather firm, pallid olivaceous. Latex copious, white, slowly changing to greenish gray, intensely acrid, leaving a burning sensation afterward.

Lamellae decurrent, many forked near stipe, narrow, crowded, pallid at first, becoming greenish then dingy olive gray spotted (finally over all), edges even.

Stipe (1.5)4-8(10) cm long, (8)10-25 mm thick, enlarged downward, occasionally narrowed below, solid but hollowed in age, becoming dingy gray within, surface viscid, soon dry, glabrous, scrobiculate, more or less concolorous with pileus, retaining its ~~color~~ color when dried.

Spores "light buff" in deposits, 7-9 x 6-7  $\mu$ , broadly ellipsoid, coarsely and closely reticulate and with prominent warts; basidia four-spored; pleurocystidia 50-60 x 6-8  $\mu$ , scattered fusoid to aciculate, apices blunt in some, content usually refractive; cheilocystidia like the pleurocystidia but smaller; pellicle of pileus a gelatinous layer of narrow (2-5  $\mu$ ) interwoven hyphae, hyaline when crushed out but when first revived in KOH sections are dingy vinaceous.

HABIT, HABITAT, AND DISTRIBUTION: Single to gregarious under

conifers in the Cascade Mountains, summer and fall. Sm-16634 leg.  
Smith, Noisy Creek, Baker Lake, Washington, September 5, 1941.

OBSERVATIONS - A small (cap 2-4 cm) and a large form occur, but the small form comes early in the season and the large one late so I suspect they are not significant as taxa. This is probably L. turpis but if so the descriptions in the literature are not accurate.

Notes by Hesler

Spores 7-9.5 x 6-7.5  $\mu$ , ellipsoid to subglobose, warts 0.4-0.8 (1.0)  $\mu$  high. All other characters as in Sm-31019.



*olivaceo-umbrinus* sp. nov.  
Sm. 16731 LACTARIUS ~~GRISEOVIRIDIS~~ sp. nov.

(See Card Sm. 16634)

Mt. Baker, Washington, September 8, 1941.

Spores 7.5-9.5 x 6-8  $\mu$ , warts 0.4-1.0  $\mu$ , bands not forming a reticulum, or at most a partial one. Pleurocystidia, cheilocystidia, and other characters as in 16634.

Sm -- 16866

*olivaceo-umbrinus* sp. nov.  
LACTARIUS ~~GRISEOVIRIDIS~~ sp. nov.

Mt. Baker Nat. Forest, Washington, September 11, 1941

Smith says: see 16634.

Micro characters as in Sm-16634.

*olivaceo-umbrinus* sp. nov.

Sm - 16922

LACTARIUS ~~GRISCOVIRIDIS~~ sp. nov.

Mt. Baker Nat. Forest, Washington, September 13, 1941

Label on lid says: see 16634, with which it agrees in micro characters.

Sm-24035

LACTARIUS ~~GRISEOVIRIDIS~~ sp. nov.

*olivaceo-umbrinus* sp. nov.

Under conifers, Mt. Hood Nat. Forest, Oregon, 1946

Notes by Smith

Near turpis; pileus sordid olive green; latex white staining gills greenish-gray; see Sm-16634.

Notes by Hesler

Spores 7-9.5(10) x 6-8  $\mu$ , warts 0.4-0.8(1.0)  $\mu$  high, bands and branches forming a partial or no reticulum. Pleurocystidia ~~52-98~~ 53-92 x 6-10  $\mu$ , ventricose-acuminate; cheilocystidia 42-68 x 5-7  $\mu$ , similar. Pileus cuticle an ixocutis; hypoderm distinct; both lilac-vinaceous in KOH. Stipe cuticle similar.

Since the hypoderm and ~~trama~~ <sup>epicuticular</sup> hyphae both stain vinaceous-lilac in 2% KOH, and trama does not so stain, it is apparent that the <sup>may be regarded as</sup> hypoderm ~~is~~ a part of the cuticle.

Agrees with Sm-16634, which is L. griseoviridis sp. nov.

Sm - 29627

~~LACTARIUS CRISEO-VERIDIS~~ *olivaceo-umbrinus* sp. nov.

Lower Tahoma, M.R.N.P., Washington, July 30, 1948

(Smith says: see 16634)

Micro features as in Sm-16634.

Sm-31019

*olivaceo-umbrinus* sp. nov. Type  
LACTARIUS GRISEOVIRIDIS sp. nov.

Lower Tahoma, Mt. Rainier Nat. Park, September 8, 1948 (Smith, on box lid, says "see Sm-16634")

Notes by Hesler

"light buff" in deposit,

Spores <sup>8-10(11)</sup> x 6-8(9)  $\mu$ , ellipsoid or subglobose, warts 0.4-1.0 (1.5)  $\mu$  high, with bands and a few isolated warts, bands not forming a reticulum or a partial one, but with a few free-ending branches. Basidia 48-57 x 9-11  $\mu$ , 4-spored. Pleurocystidia 57-74 x 5-10  $\mu$ , more or less ventricose to filamentose, apices tapering, often more or less constricted, at times capitate, granular-spangled, numerous; pseudocystidia more or less filamentous; cheilocystidia 38-57 x 5-8  $\mu$ , similar to pleurocystidia. Gill trama of subparallel, narrow, undulating hyphae. Pileus trama loosely interwoven and vesiculose. Pileus cuticle an ixocutis, the zone vinaceous-lilac in KOH; hypodermium brownish, more or less distinct. Stipe cuticle an <sup>an ixocutis;</sup> ~~ixocutis~~ type; rosettes numerous; vinaceous-lilac in KOH. Clamp connections none.

Because of the green spotting of the gills, the greenish or olive colors of the pileus and stipe, and the vinaceous-lilac staining of the cuticle in 2% KOH, this seems more closely related to the Atriviridi than to the Triviales.

It is closer to turpis than to sordidus, but differs from turpis in its larger spores, longer warts, white latex changing to greenish gray, its zonate pileus.

Same as Sm-16634.

*Pectanurus griseovirens* sp. nov.  
olivacea - umbrinus  
Sm - 31019

Type



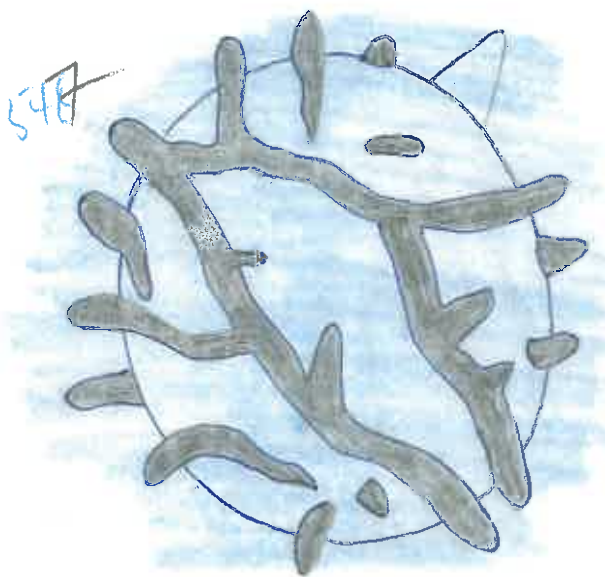
Pl - x 1000



Ch - x 1000



Pseudo -  
x 1000



Spore - x 8000

Sm 48739

*olivaceo-umbrinus* sp. nov.  
LACTARIUS ~~GRISEOVIRIDIS~~ sp. nov.

Power House Area, Mt. Rainier National Park, <sup>Washington,</sup> September 9, 1954.  
^

This was labelled L. turpis, without notes. However,  
it has the micro characters of L. griseoviridis sp. nov.  
With some reservation, I call it this latter. (See: Sm.  
16634, 16731, 31019)



Sm - 40271

*olympianus*  
LACTARIUS ~~ARNOLDII~~ sp. nov.

Meadow Creek, Mt. Rainier Nat. Park, Washington, September 25, 1952

Notes by Smith

Pileus 4-6 cm broad, more or less "apricot orange," glabrous, viscid, zonate. Latex white, unchanging, promptly very acrid.

Lamellae adnate-subdecurrent, becoming "cinnamon buff," in some becoming spotted ochroleucous, narrow, close; with scattered lamellulae.

Stipe 2.5-5 cm long, 7-12 mm thick, dry, concolorous but paler, hollow, rather equal.

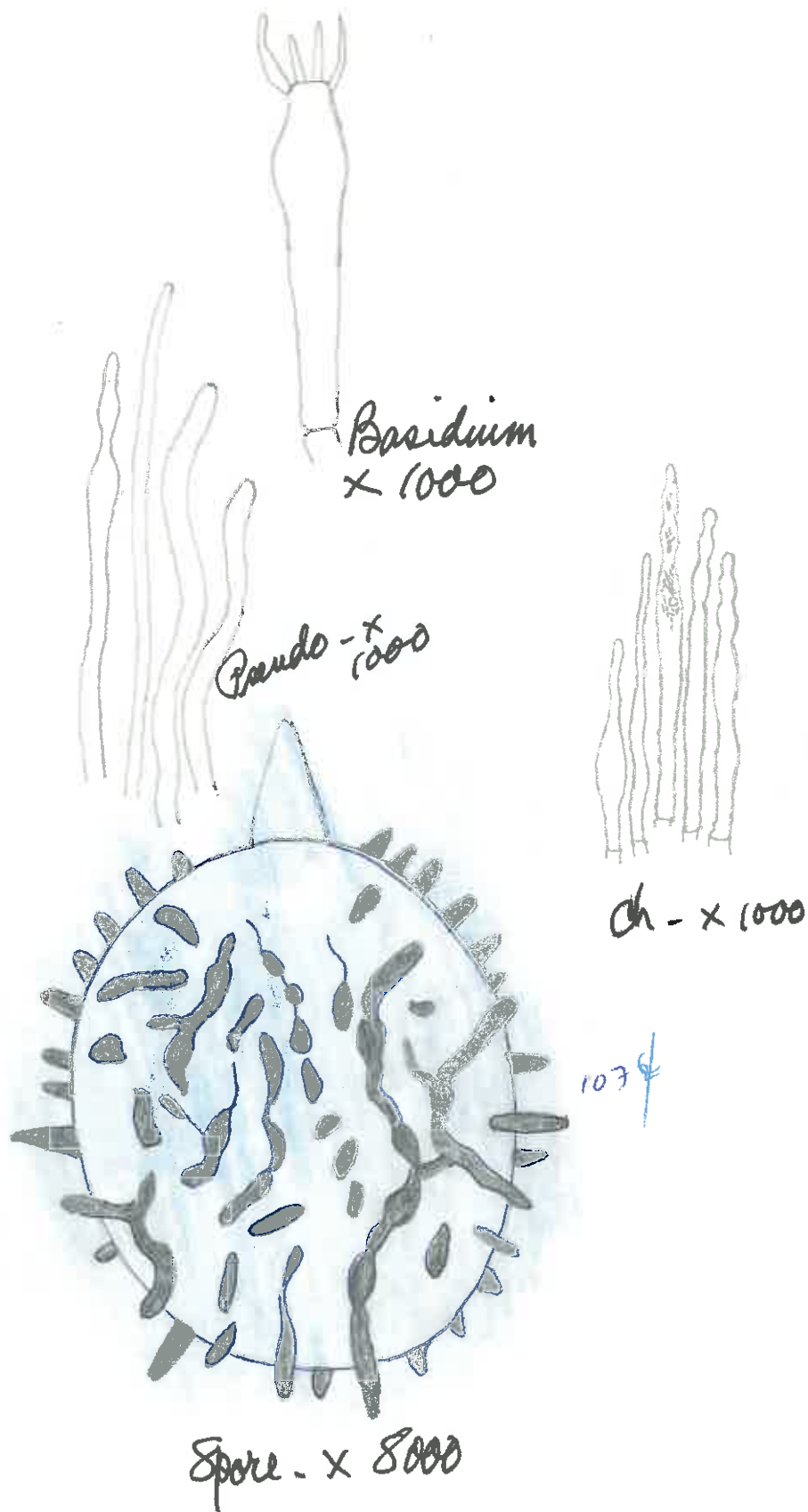
Spores in deposit: cream buff.

Notes by Hesler

Spores "cream buff" in deposit, 9-12 x 7.5-9  $\mu$ , warts variable in ornamentation and height (0.2-1.0  $\mu$ ), isolated or connected by lines and bands. Basidia 48-64(78) x 10-12  $\mu$  (2-3)4-spored, sterigmata noticeably stout. Pleurocystidia none; pseudocystidia filamentous, 2-5  $\mu$  broad; cheilocystidia 30-53 x 2-5  $\mu$ , slender-filamentous to slender-ventricose, apices tapering and often moniliform. Gill trama of subparallel to interwoven hyphae; subhymenium of small cells. Pileus trama vesiculose, a high proportion of cells, relatively fewer hyphae than usual. Pileus cuticle an ixocutis; hypodermium brown. Stipe cuticle of dry, repent hyphae; rosettes none. Clamp connections none.

Distinctive features are the bright-colored, zonate, pileus; white, unchanging, acrid latex which stains ochroleucous; the large, characteristically marked spores; absence of pleurocystidia, the slender cheilocystidia.

*Factarius armoniacus* sp. nov.  
Sm - 40271 olympianus



Sm-77246

*olympianus*  
LACTARIUS ~~CYSTOPILEATUS~~ sp. nov.

Sheep Lake, leg. K. A. Harrison, August 21, 1961

Notes by Harrison

Pileus 6 cm broad, plano-convex, depressed slightly, viscid, glabrous, zonate, darker zones tawny, otherwise paler brownish, even. Context creamy white, acrid. Latex white, unchanging, not staining, scanty, acrid.

Lamellae adnate, "light ochraceous buff," not staining, forked near stipe, moderately close, rather narrow.

Stipe 4 cm long, 10 mm thick, "light ochraceous buff" becoming hollow, equal, dry.

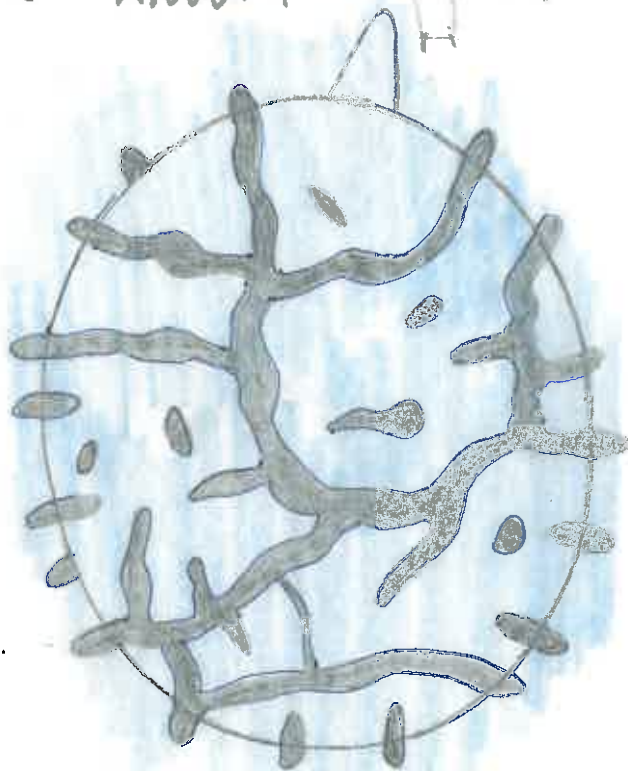
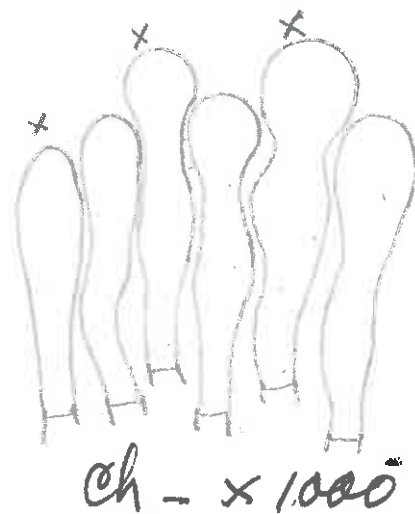
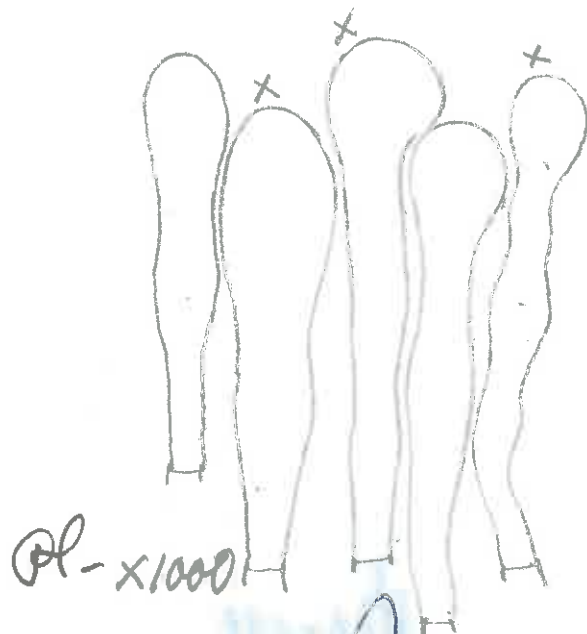
Notes by Hesler

Spores 9-12 x 8-10  $\mu$ , ~~broadly~~ broadly ellipsoid, warts 0.2-0.6  $\mu$ , bands and branches forming a partial reticulum. Basidia 54-67 x 12-15  $\mu$ , 4-spored. Pleurocystidia 55-68 x 10-15  $\mu$ , ventricose-capitate or clavate-capitate; pseudocystidia filamentous, 3-5  $\mu$  broad; cheilocystidia 36-48 x 8-12  $\mu$ , similar to pleurocystidia. Pileus cuticle an ixocutis. Stipe cuticle of repent, dry hyphae, bearing more or less a turf of uplifted branches as caulocystidia, 30-62 x 3-5  $\mu$ , hyphoid and often more or less constricted; rosettes present. Clamp connections none.

This is distinguished by its striking brownish, zonate, viscid pileus; its rather large, ~~broadly~~ broadly ellipsoid spores; and its distinctive pleurocystidia and cheilocystidia. It is near L. cognoscibilis.

*Pactarius cystopileatus* sp. nov.

Sm - 77246 Olympianus



Spore - x 8000



Caulo -  
x 1000

*Oswaldiae* sp. nov.?

*Held*; in the *pubescens* group?

Sm-77244 LACTARIUS ~~TERMINOSUS~~ var. ~~AZONUS~~ var. nov.

On sandy soil, under black cottonwood, Portland, Oregon,

leg. Ruth Oswald, October 23, 1955

Notes by Oswald

Pileus 6-16 cm, disc near "salmon orange," margin fading to pinkish buff, azonate, with a whitish bloom when dry, viscid, appressed-fibrillose to tomentose. Context whitish or near concolor, 10 mm thick; odor pleasant. Latex white, unchanging, acrid, copious, dries as white globules on the gills.

Lamellae subdecurrent, near "light ochraceous buff," mottled with darker stains, anastomosing near stipe, crowded, narrow.

Stipe 4-6 cm x 20-30 mm, concolor, in age appearing "watery-spotted," the spots translucent and not depressed, firm, dry, stuffed then hollow.

Spores in deposit: cream colored.

Notes by Hesler

Spores 6-8.5 x 5-5.5(6)  $\mu$ , ellipsoid and often slender, warts 0.2-0.3  $\mu$ , bands and branches forming a partial reticulum. Basidia 40-44 x 7-8  $\mu$ , 4-spored. Pleurocystidia 48-56 x 5-7  $\mu$ , ventricose-acuminate, widely scattered and inconspicuous; cheilocystidia 32-38 x 4-7  $\mu$ , ventricose, more or less acuminate, not abundant. Pileus cuticle an ixocutis. Stipe cuticle dry, repent; rosettes present. Clamp connections none.

Sm-77244

*oswaldae* sp. nov.  
L. ~~terminosus var. azonus~~ - page 2

Chief characters: The pileus is large (6-16 cm), the disc salmon-orange, viscid, azonate, fibrillose; odor pleasant; spores in deposit; cream, and usually slender-ellipsoid; stipe dry.

*Sactarius* ~~peribaculatus~~ <sup>terminatus</sup> oswaldeae var. ~~agonus~~ var. nov.

SM - 77244

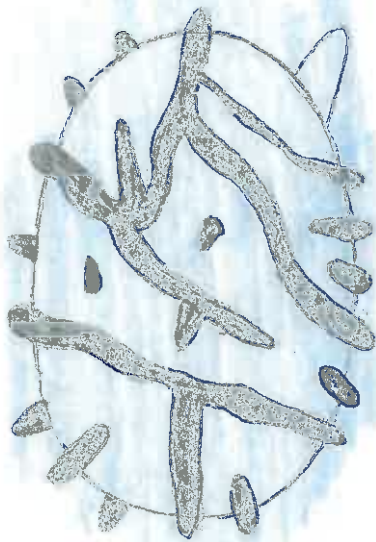
Terminus



Sp - x 1000



Ch - x 1000



958  
488

Spore - x 5000

Sm-8866

*pallescens* var. *pallescens*  
LACTARIUS ~~UVIDUS~~ var. ~~CANDIDULUS~~

Crescent City, California, November 18, 1937. (Labelled by Smith as L. uvidus, white form, but on the box-lid changed to L. candidulus, see 9130.)

Microscopically the same as 9130, L. candidulus, but a bit more brownish (dried). The basidiocarps may be younger than in 9130, and thus darker.



Sm-9130

*pallens* var *pallens*  
LACTARIUS ~~VIDUUS~~ var. ~~CANDIDULUS~~ Neuhoff

Gregarious in mixed forest, Kerby, Oregon, November 26, 1937

Notes by Smith

Pileus 5-10 cm broad, convex with an inrolled margin, becoming plane or with a depressed disc, glabrous, covered by a thick layer of gluten, margin minutely downy when young, whitish or tinged livid-gray, sometimes faintly zoned or with a few watery spots, at times splashed with ocher-yellow, especially near margin, in age dingy purplish gray because of changing flesh. Context white, <sup>firm</sup>/thick on disc, slowly discoloring to dingy lilac. Latex white, staining the gills sordid-lilac but not changing readily itself, slowly bitterish but not acrid.

Lamellae decurrent, narrow, crowded, white, staining lilac where broken, becoming "ochraceous buff" in age (first on edge).

Stipe 4-8 cm long, 10-30 mm thick, whitish or colored like the pileus, "ochraceous buff" over all of streaked or splashed this color in age, base bright ochraceous, narrowed below, stuffed, glabrous, surface uneven, mycelium yellow.

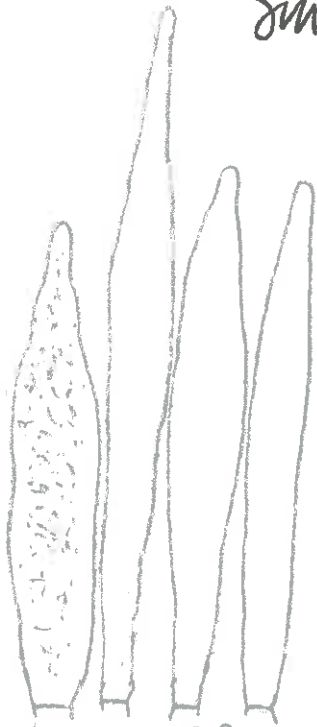
Notes by Hesler

Spores 8-10(11) x 6.5-7.5(8)  $\mu$ , ellipsoid, warts 0.2-0.5  $\mu$  high, with broad bands forming a partial reticulum, often with free-ending branches, and some isolated warts. Basidia 43-52 x 8-10  $\mu$ , 4-spored. Pleurocystidia 66-92 x 7-12  $\mu$ , acuminate, granular-spangled; cheilocystidia 36-50 x 4-6  $\mu$ , more or less similar. Gill trama of small, irregular cells. Pileus trama vesiculose. Pileus cuticle a gelatinous zone of narrow hyphae--an ixocutis--resting on more or less a distinct brown hypodermium. Stipe cuticle an ixocutis. Caulocystidia 38-62 x 3-5  $\mu$ , filamentous,

over

granular, repent or semi-erect; rosettes present.  
Clamp connections none.

~~uridus var.~~  
*Pactarius* <sup>^</sup> *Candidulus* ~~Kenhoff~~  
~~sp. nov.~~  
 Sm - 9130 *pallenscent* v. *pallenscent*



Cl - x 1000



Ch - x 1000



Spore - x 8000



Caulo -  
 x 1000

*pallidus* var. *pallidus*  
Sm-16918 LACTARIUS ~~UVIDUS~~ var. ~~CANDIDULUS~~ Neuhoft

Ermine Creek Trail, Mt. Baker, Washington, September 13, 1941

(At first called, by Smith, L. uvidus, pale form; on the box-lid, he labelled it L. candidulus.)

Same as 9130.

Sm-17385

*pallidus* v. *pallidus*  
LACTARIUS ~~UVIDUS~~ var. CANDIDULUS

Mt. Angeles, Olympics, Washington, September 28, 1941

Smith says: see 9130 (which is var. candidulus), near  
var. uvidus. Pale. On the lid he says candidulus.)

Notes by Hesler

Dried, the caps are pallid-tawny. It is assumed that the  
latex stains lilac.

Micro characters as in Sm-9130, including the stipe  
cuticle and ixocutis.

*pallens* var. *pallens*

Sm-19957 LACTARIUS ~~UVIDUS~~ var. ~~CANDIDULUS~~ Neuhoff  
Rhododendron, Oregon, October 19, 1944

(Smith says: white, near uvidus; see 9130, which is  
L. uvidus var. candidulus).

Spores and other micro characters as in Sm-9130. Both  
pileus and stipe cuticles an ixocutis.

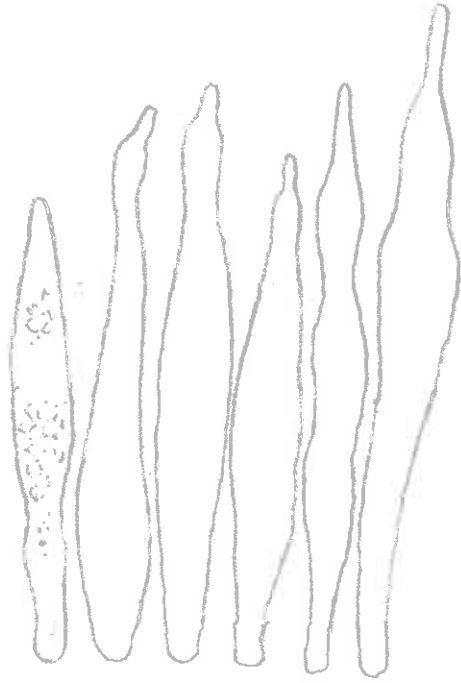
*pallens* var. *pallens*  
~~*candidatus* Henhoff~~

23258 LACTARIUS ~~UVIDUS~~ var. ~~PALLESCENS~~

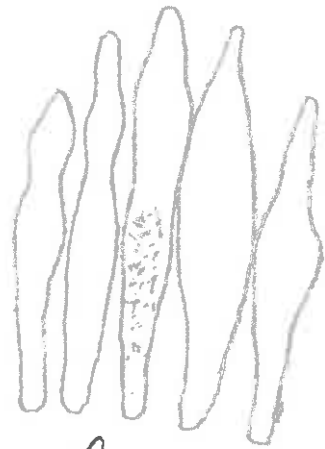
Upper Priest River, Idaho, leg. Petersen, det. Smith,  
September 28, 1966.

Spores 8.5-10 x 7-8.5  $\mu$ , ellipsoid, warts 0.4-0.8  $\mu$  high, with broad and narrow bands and a few lines, often with free ends, forming more or less a reticulum. Basidia 48-60 x 10-12  $\mu$ , 4-spored. Pleurocystidia 60-86 x 7-11  $\mu$ , fusoid-ventricose, 1 or acuminate, apices tapering, granular-spangled, numerous; pseudocystidia rare; cheilocystidia 43-54 x 6-8(11)  $\mu$ , similar. Gill trama of undulating-subparallel or interwoven hyphae. Pileus trama vesiculose. Pileus cuticle a subgelatinous zone (125-150  $\mu$  thick) of loosely interwoven hyphae. Stipe cuticle a distinct gelatinous zone, often with more or less imbedded caulocystidia, 65-82 x 4-9  $\mu$ , ventricose, with long tapering apices, granular-spangled (resembling pleurocystidia, but slightly more slender), numerous. Clamp connections none.

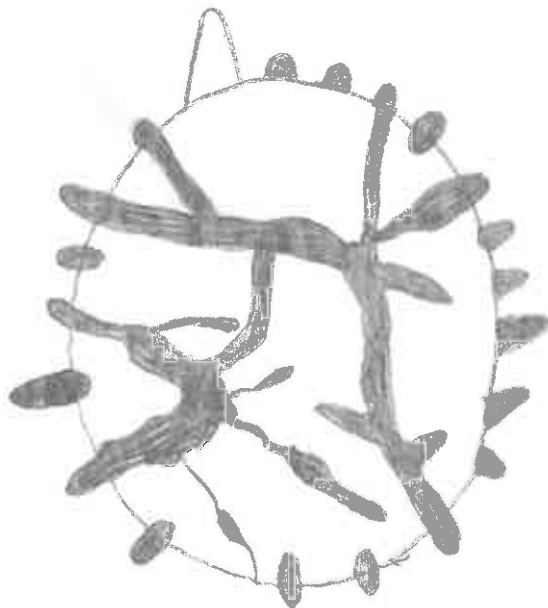
Factorius uviformis var. ~~pallidus~~ <sup>candidulus Kenhoff</sup>  
~~pallidus~~ v. pallidus <sup>PH</sup>  
 23258 (Idaho: leg. Petersen, det. Smith)



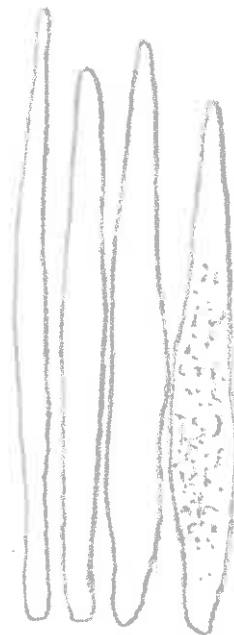
Fl - x 1000



Ch - x 1000



Spore - x 8000



Caule - x 1000



*pallens* var. *pallens*  
~~*uvidus* var.~~

Sm - 24199

LACTARIUS ~~CANDIDULUS~~

Mt. Hood Nat. Forest, Oregon, October 6, 1946 (near uvidus, but white)

(see 9130) *M. candidulus*

Spores 8-11 x 7-8.5  $\mu$ , warts 0.2-0.5  $\mu$ , bands forming a partial or no reticulum. Pleurocystidia 67-105 x 7-11  $\mu$ ; cheilocystidia similar, smaller. Pileus cuticle an ixocutis (interwoven hyphae). Stipe cuticle an ixocutis.

Sm-24629

*pallidus* var. *pallidus*  
LACTARIUS ~~UVIDUS~~ var. ~~CANDIDULUS~~

Salmon River, Oregon, October 15, 1946

(white, near uvidus. See 9130) ~~L. candidulus~~

Micro characters as in Sm-9130.

*pallens* var. *pallens*  
Sm - 27431 LACTARIUS ~~LEVIDUS~~ var. ~~CANDIDULUS~~

East Fork, Salmon River, Mt. Hood, Oregon, October 8, 1947

(Smith says: see 9130, which is candidulus)

Micro characters as in Sm-24199.

Sm-30089

*pallenscens* v. *pallenscens*  
LACTARIUS ~~UVIDUS var. CANDIDULUS~~

Carbon River, Mt. Rainier Nat. Park, Washington, August 13, 1948

Smith (on label) says: "whitish form of L. uvidus," and calls it  
Lactarius "pallenscens."

Notes by Hesler

Spores 8-10(11) x 7-8.5(9)  $\mu$ . Pleurocystidia and cheilocystidia  
usual. Pileus and stipe cuticle - ixocutis.

Sm - 31509

LACTARIUS PALLESCENS var. pallenscens

Lower Tahoma, MRNP, Washington, September 20, 1948 (labelled: uvidus var.  
pallenscens var. nov.)

Micro characters as in Sm-76283; but, the gills are slightly closer  
than in 76283.

Spores 9.5-13.5 x 8-10  $\mu$ , too large for L. candidulus.

Sm-40056

*pallascens* v. *pallascens*  
LACTARIUS ~~UVIDUS~~ var. ~~CANDIDULUS~~

Green Lake, Mt. Rainier Nat. Park, Washington, September 18,  
1952

Smith (label) says: "pale uvidus."

Micro characters as in Sm-9130.

Sm-48145

*pallens* v. *pallens*  
LACTARIUS ~~UVIDUS~~ var. CANDIDULUS

Longmire, Washington, September 29, 1954

Labelled "pale uvidus" - candidulus. Micro characters as  
in Sm-9130.

Sm-48251

LACTARIUS ~~UVIDUS~~ <sup>*pallescens* v. *pallescens*</sup> ~~var. CANDIDULUS~~ Neuhoff

Green Lake, Mt. Rainier Nat. Park, Washington, October 1, 1954 (labelled  
L. uvidus var. pallescens)

The label suggests it is a white-uvidus. Micro characters indicate  
var. candidulus.



Sm-54074

LACTARIUS

*pallescens* v. *pallenscens*  
~~UVIDUS var. CANDIDULUS~~

PHOTO (not found)

Under pine, Priest Lake, Idaho, October 5, 1956 (labelled:

"uvidus pallescens"/type of candidulus)

Spores 8-11 x 6.5-8  $\mu$ , warts 0.2-0.6  $\mu$ , bands forming a partial reticulum. Pleurocystidia 74-120 x 8-14  $\mu$ , ventricose, at times constricted; cheilocystidia 52-80 x 8-12  $\mu$ , similar. Pileus and stipe cuticles--an ixocutis.

Otherwise as in Sm-9130.

Sm-76283

LACTARIUS PALLESCENS sp. nov.

C-PHOTO

var. *pallescent*

Under Cedar-Hemlock, Upper Priest River, Idaho, September 13,  
1968 (labelled "pallescent"):

Notes by Smith

Pileus 3-6 cm broad, convex, expanding, slightly depressed, glabrous, slimy, milk-white over all. Context taste slowly burning-acrid. Latex white, staining gills purplish grey.

Lamellae subdecurrent, creamy-white, close to sub-distant, lamellulae present.

Stipe 3-5 cm long, 6-11 mm thick, viscid, white, hollow, glabrous, equal.

Notes by Hesler

Spores 9-13 x 8-9  $\mu$ , ellipsoid, warts 0.4-1.0  $\mu$  high, some isolated, bands more or less branching, nor or rarely forming a complete reticulum. Basidia 52-58 x 9-12  $\mu$ , 4-spored. Pleurocystidia 68-94 x 6-12  $\mu$ , fusoid, granular; cheilocystidia 53-74 x 6-9  $\mu$ , similar. Gill trama undulating, subparallel. Pileus trama vesiculose. Pileus cuticle a thick (300-500  $\mu$ ) ixocutis; hypodermium brownish. Stipe cuticle an ixocutis; hypodermium brownish; rosettes present. Clamp connections none.

Apparently regarded by Smith as new and given the name "pallescent." Near aspideus which is buff and spores 8-9.5 x 7-8.5  $\mu$ ; and near aspideoides which is sulfur-yellow, spores 7.5-9 x 6.5-7.5  $\mu$ .

*Pastarinus pallescens* sp. nov. var. *pallescens*

Sm-76283

Plasma  
not as close  
to outer perianth



Pl. x 1000



Ch. x 1000



Spore - x 8000

Sm-76485

LACTARIUS PALLESCENS sp. nov.

var. pallenscens

C-PHOTO

Upper Priest River, Idaho, September 19, 1968.

Spores and otherwise as in Sm-76283.

Sm-77211

LACTARIUS PALLESCENS sp. nov. *var. pallens*

Upper Priest River, Idaho, September 25, 1968.

Pleurocystidia up to  $122 \times 12 \mu$ ; pileus cuticle not fully gelatinized.  
Otherwise as in Sm-76283.

Sm-79672

LACTARIUS PALLESCENS sp. nov.

var. *pallenscens*  
C-PHOTO

Van Dugar Corridor, Polk County, Oregon, November 8, 1970

Notes by Smith

Pileus 5-10 cm broad, broadly convex to convex-depressed, with an inrolled margin, becoming plano-depressed, glabrous, very slimy, white to pallid at first, gradually discoloring, somewhat on aging. Context thick, firm, white, soon stained dingy to bright lilac, taste mild to slightly and slowly burning-acrid. Latex white, copious, soon staining gills lilaceous, then fading slowly to tan overnight.

Lamellae short-decurrent, white then discolored (as above), broad, subdistant.

Stipe 4-9 cm long, 10-17 mm thick, surface pallid, but in age with rusty stains, slimy, soon dry, pallid within.

Spore near "pale cartridge buff" (creamy white).

Notes by Hesler

Spores 9-12 x 7.5-9  $\mu$ . Pleurocystidia 87-118 x 8-12  $\mu$ , ventricose-acuminate; cheilocystidia 40-72 x 6-8  $\mu$ , similar. Pileus and stipe cuticle an ixocutis.

Tenn-35428

Thiers - 23030

LACTARIUS PALLIDO-OLIVACEUS sp. nov.

TYPE

Gregarious on soil, under Pinus ponderosa, Cane Junction, Oregon,

October 18, 1968

Notes by Thiers

Pileus 4-7 cm broad, irregular in shape, not truly convex but often shallowly depressed, with age sometimes becoming deeply and noticeably depressed, nearly white, then "olive buff" or "pale olive buff" but with many slightly darker or paler areas, distinctly dry, dull, appearing glabrous but minutely velvety under a lens, margin somewhat eroded and rimose. Context white when fresh, when exposed turning red; taste distinctly mild; odor not distinctive. Latex scanty, staining the pileus context red or in age avellaneous, and the lamellae and stipe avellaneous, mild.

Lamellae adnate, white when young, / with age becoming distinctly yellow to ochraceous yellow, staining avellaneous where bruised, close or subdistant, more often subdistant, margins concolorous with the gill face.

Stipe 3-5 cm long, 10-20 mm thick at apex, white, staining avellaneous when handled, tapering toward the base, glabrous, tough, hard, flesh white, staining slowly, solid.

Notes by Hesler

Spores 8-9.5 x 7.5-9  $\mu$ , globose, subglobose, or broadly ellipsoid, warts 0.2-0.5  $\mu$  high, bands forming a complete or partial reticulum, with a narrow webbing. Basidia 48-55 x 10-12  $\mu$ , 4-spored. Pleurocystidia none; pseudocystidia 4-5  $\mu$  broad, filamentous, at times variously branched;

~~cheilocystidia~~

cheilocystidia 25-46 x 2-4  $\mu$ , filamentous, numerous, extending up the sides to a distance of about ~~1~~ 125  $\mu$ . Gill trama of subparallel hyphae. Pileus trama vesiculose. Pileus cuticle a turf or tufts of pileocystidia, 25-75 x 3-4  $\mu$ , filamentous, arising from an interwoven subcutis. Stipe cuticle similar to that of the pileus; rosettes present. Clamp connections none.

This is characterized by the change to red color of the exposed flesh when young and fresh, but when mature the flesh, lamellae, and stipe staining avellaneous,  $\phi$  concolorous gill-edges, subdistant gills, solid stipe, turf often as tufts of pileocystidia which arise from an interwoven subcutis, the stipe cuticle similar, and the olive buff color of the pileus.

It is near L. burkei in which there are no color changes, and the pileus is "pale pinkish buff."

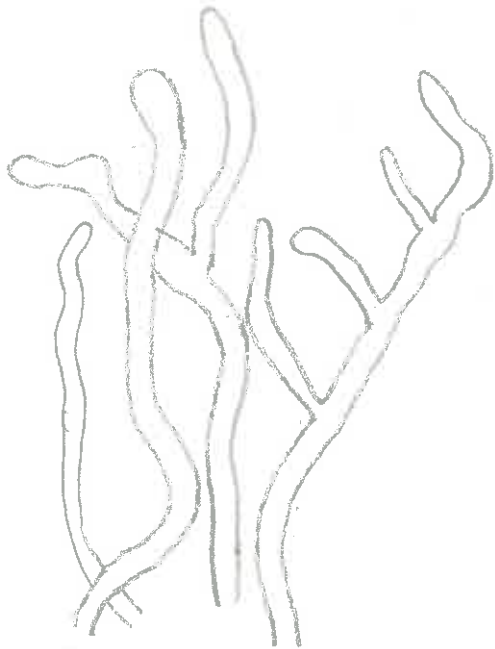


*Factarium pallido-olivaceus* sp. nov.

Thiers - 23030

*Plutogale*

*Plutogale*  
(Ken)



Pseudo - x 1000

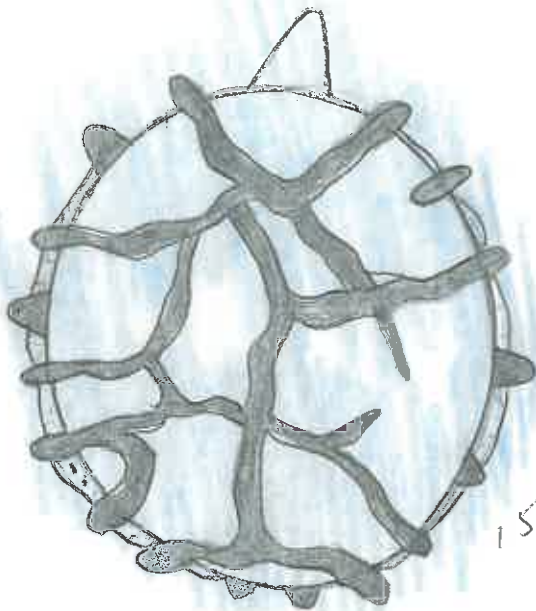


Rh - x 1000



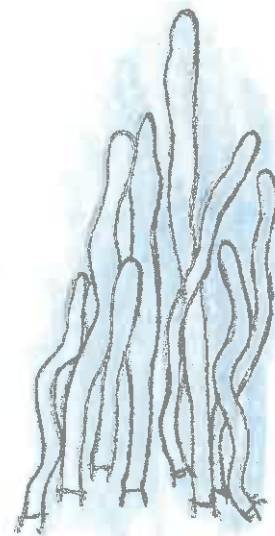
1699

Pileo tuft - x 1000



1530

Spore - x 8000



1700

Caulo - tuft - x 1000

Barrows - 29

*ballido-olivaceus*  
LACTARIUS ~~FUNGUS~~ var. ~~OCCIDENTALIS~~

Santa Fe ski area, 10,000 ft., under conifers and aspen, N. Mexico,

August, 1970

Notes by Barrows

Pileus 4-6.5 cm, dull greyish brown, dry, no zones. Latex white (found only in youngest specimen), unchanging, not staining the gills; taste not distinctive.

Gills adnate, dull ocher-yellow, close, edges concolor.

Stipe dry, concolor with cap.

Notes by Hesler

Spores 8-10 x 7.5-9  $\mu$ , globose to subglobose, warts 0.3-1.0  $\mu$ , bands and branches forming a partial reticulum, webbing present. Basidia 48-56 x 10-12  $\mu$ , (2)4-spored. Pleurocystidia none; cheilocystidia 33-42 x 3-7  $\mu$ , cylindric to subclavate, sometimes capitate. Pileus cuticle chiefly of brownish, more or less interwoven hyphae, bearing a thin turf of colorless pileocystidia. Stipe cuticle of interwoven hyphae, bearing a turf of caulocystidia similar to the pileocystidia; rosettes present.

Sm-9132

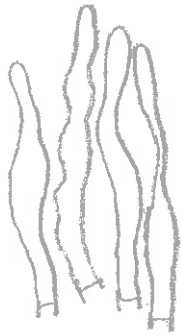
*pallido-olivaceus*  
LACTARIUS ~~FUNGUS~~ var. ~~CCCIDENTALIS~~

Kirby, Oregon, oak-pine woods, November 26, 1937

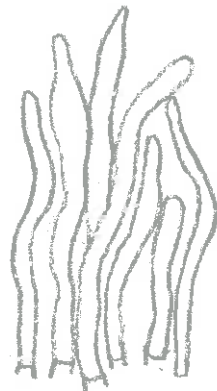
Holotype

Spores 8-11 x 8-10  $\mu$ , globose to subglobose, warts 0.6-1.7  $\mu$  high, some slender, others conic-stout, a few scarcely amyloid, with a thin webbing, bands and lines forming a partial or complete reticulum. Basidia 58-64 x 8-10  $\mu$ , 4-spored. Pleurocystidia none; pseudocystidia filamentous; cheilocystidia 28-40 x 3-5  $\mu$ , subventricose, often more or less crooked. Gill trama of narrow, slightly interwoven hyphae. Pileus cuticle a turf of slender, colorless pileocystidia, 20-50 x 2-4  $\mu$ , filamentous, subventricose, arising from interwoven hyphae, subcutis slightly gelatinized. Stipe cuticle a colorless turf of caulocystidia, often matted down, similar to pileocystidia, subcutis non-gelatinous; rosettes present. Clamps none.

*pallido-olivaceus*  
*Factarius fumosus* var. *occidentalis*  
 Sm - 9132 - ~~Holotype~~



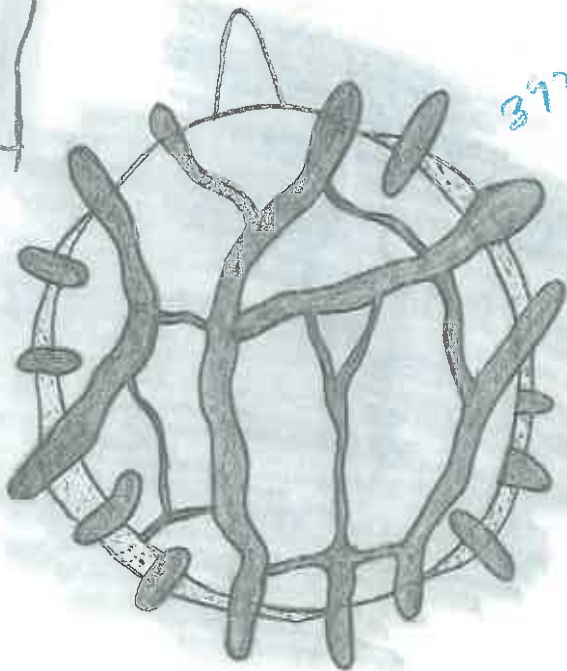
Ch - x 1000



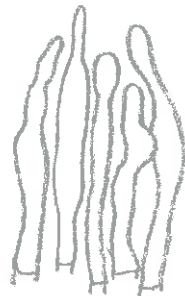
Pileo turf  
 x 1000



Ch - x 2000



Spore - x 8000



Caulo turf  
 x 1000

29273

*pallido-olivaceus*  
LACTARIUS FUMOSUS var. OCCIDENTALIS

Norton Road, Highlands, N.C., coll. Petersen, August 9, 1966.

Pileus 3.5 cm broad, convex, "Dresden brown" on margin, pale brown on central portion, dry, velvety, margin even. Flesh pallid, unchanging. Latex white, unchanging and not staining the gills or flesh, mild.

Lamellae adnate, at first "antimony yellow," close, nearly subdistant at maturity, medium broad, edges concolorous.

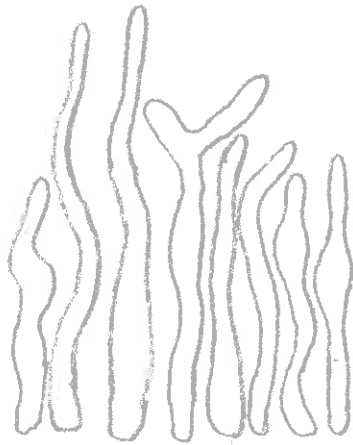
Stipe 6 cm long, 9 mm thick (apex), 12 mm thick at the whitish base, concolorous, minutely velvety, hollow.

Spores 8.5-10  $\mu$ , globose, warts 0.8-1.7  $\mu$  high, <sup>reticulum</sup> ~~reticulation~~ a distinct band, at times broken; spores in deposit: ochraceous cream. Basidia 33-50(62) x 10-12  $\mu$ , 4-spored. Pleurocystidia none; pseudocystidia 40-54 x 4-7  $\mu$ , buried, rare to scattered, clavate, at times subcapitate; cheilocystidia 35-58 x 3-5  $\mu$ , filamentous, often crooked. Cuticle of pileus of hyphae giving rise to more or less a turf of cylindric pileocystidia. Cuticle of stipe of more or less repent interwoven hyphae giving rise to a scattered to dense turf of caulocystidia, 16-30 x 3-5  $\mu$ , similar to cheilocystidia. Stipe cortex with rosettes.

*pallido-olivaceus*  
*Factarius fumosus* var. *occidentalis*  
No. 29273



Pl - x 1000  
(Pseudoscytoidia)



Ch - x 1000

TENN - 35427

Thiers - ~~24~~ 21400 *LACTARIUS* ~~FUMOSUS~~ *pallido-olivaceus* var. ~~CALIFORNIENSIS~~ var. nov.

In mixed woods, Jackson State Forest, Mendocino County, California,

November 5, 1967 (det. by Thiers as *L. picinus* var. *maritimus*).

Notes by Thiers

Pileus 5.5 cm broad, dry, dull, velutinous to subtomentose, near pale bister in places, "warm buff," "light buff," to "pale ochraceous buff," generally in the pale bister to tawny olive series. Context up to 3 mm thick, white to pallid, unchanging, acrid, odor not distinctive. Latex white, unchanging, staining red to reddish brown, very acrid.

Lamellae adnate, pale ochraceous buff to warm buff, staining red to reddish brown, thin, close to subdistant, not marginate, several tiers of lamellulae.

Stipe 6.5 cm long, 10 mm thick, equal, "pale ochraceous buff," staining red to reddish brown where bruised, minutely velutinous.

Notes by Hesler

Spores (7.5)8-10.5 x (7)8-9.5  $\mu$ , globose, subglobose, or broadly ellipsoid, warts 0.5-1.0  $\mu$  high, bands forming a partial or complete reticulum, often also with some lines. Basidia 46-63 x 9-11  $\mu$ , 4-spored. Pleurocystidia none; pseudocystidia filamentous, at times crooked and branched; cheilocystidia 35-52 x 3-6  $\mu$ , filamentous, cylindric with slight enlargement at the base or middle (usually extending up the sides a short distance). Gill trama subparallel. Pileus trama vesiculose. Pileus cuticle a turf of hyphal end-cells (pileocystidia) arising from an interwoven, hyphal subcutis, pileocystidia 22-40 x 3-6  $\mu$ , filamentous, flask-shaped, or ventricose, the subcuticular cells not enlarged. Stipe cuticle a turf of

Tenn 35427

Thiers - 21400

*pallido-olivaceus*  
~~L. fumosus var. californiensis~~ - 2

caulocystidia 30-60(90) x 3-6  $\mu$ , filamentous, cylindric or slightly  
ventricose; rosettes present. Clamp connections none.

OBSERVATIONS - The chief characters include pileus colors,  
concolorous gill-margins, the white, acrid latex staining the stipe red  
to reddish brown where bruised. It is near L. fumosus var. fumosus,  
in which the pileus is sordid white to smoky brown, spores smaller,  
basidia smaller, caulocystidia much shorter.



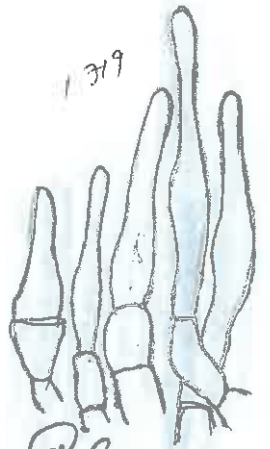
*Lactarius fumosus* var. *californicus* var. nov.  
 Thiers - 21400 pallido-olivaceus  
 (Tenn - 35427)



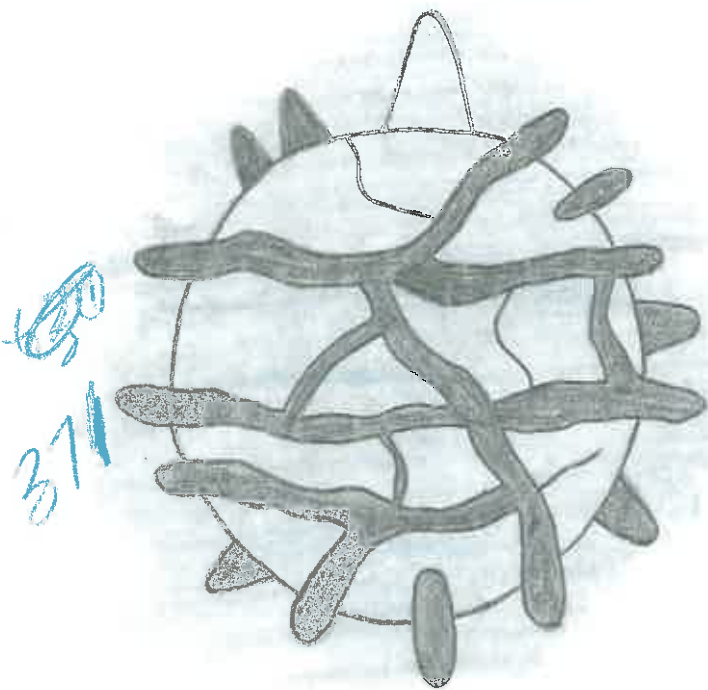
Gnendo - x 1000



Ch - x 1000



Piles -  
 x 1000



371



Caulo - x 1000

1720

*pallido-olivaceus*

~~per.~~

Sm - 72495

LACTARIUS ~~FUMOSUS OCCIDENTALIS~~

Tahquamenon, Mich., September 5, 1960.

Notes by Smith

Pileus pale smoky gray to cinnamon buff, no color change. Taste slightly peppery.

Lamellae subdistant.

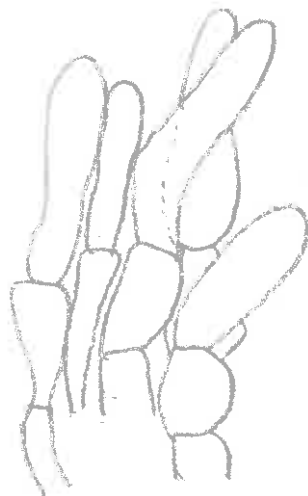
(Smith labelled it doubtfully fumosus; thus it is assumed that (1) lamellae were close then subdistant, (2) latex white (no staining and not changing color), (3) pleurocystidia only as pseudocystidia).

Spores 8-10 x 8-9.5  $\mu$ , globose or subglobose, warts 0.7-1.5  $\mu$  high, with broad and narrow bands forming a reticulum. Basidia 38-50 x 8-10  $\mu$ , (2)4-spored. Pleurocystidia none (except cheilocystidia may extend up the sides a short distance); pseudocystidia few; cheilocystidia 34-50 x 3-5(9)  $\mu$ , cylindric, clavate or subventricose, more rarely constricted-clavate and broader (9  $\mu$ ). Gill trama interwoven, short-celled; subhymenium of small cells (more or less 3-6  $\mu$  broad). Pileus trama of vesiculose cell-nests, and of rosette nests (near cuticle). Pileus cuticle of interwoven hyphae with enlarged cells the terminal elements as pileocystidia, 22-33 x 6-10  $\mu$ , clavate, forming a turf or in tufts, subcuticular zone appearing subgelatinous. Stipe cuticle of hyphae bearing caulocystidia similar to pileocystidia; outer cortex with rosettes (nests) and vesiculose-nests. Clamp connections none.

*Factarium pallido-olivaceus*  
~~*fumosus*~~ var. *occidentalis*  
Sm - 7249b



Ch - x 1000



Piles - turf  
x 1000

Bas - 1101

LACTARIUS PALLIDUS (Pers. ex Fr.) Fr.

In mixed deciduous woods, on loam, Doubs, France, September 18, 1956.

Notes by Bas (Transl. by Donk)

Cap up to 6 cm, plano-convex with an inrolled margin, occasionally with a central depression, occasionally with a small papilla, pale-isabel-flesh-color-pink, margin at first somewhat felted, then viscid and somewhat rugulose as in the rest of the cap, azonate (or very indistinctly so). Flesh pale flesh-color pink, darker in stalk; odor none, taste mild. Latex white, watery, not staining.

Gills pale pink cream (slightly grayish), *close, narrow*

Stalk 6 cm x 16 mm, cylindric, slightly narrowed toward base, faintly rugulose, somewhat viscid, color as in cap but slightly paler and spotted.

Notes by Hesler

Spores 6-8.5 x 5.5-7 u, warts 0.2-0.5 u. Pleurocystidia abundant, as in Huijsman (Tenn - 30387); cheilocystidia similar, smaller. Pileus cuticle an ixocutis. Stipe cuticle an ixocutis; rosettes present.

Differs from Neuhoﬀ's description in that the latex is white, watery.

In this collection the taste is mild. Neuhoﬀ says the latex is white, mild, but becomes unpleasant in the throat, and ~~hardens~~ *rarely* hardens to creamy-yellow (after long chewing).

Bas - 2711

LACTARIUS PALLIDUS (Pers. ex Fr.) Fr.

Lichtberg, Austria, near Fagus in Picea Forest, September 28, 1962.

Notes by Bas (transl. by Donk)

Cap 7 cm, azonate, pale-flesh-color pink, moderately viscid.  
Odor somewhat fruity; taste sharp in throat after some time. Latex white, drying to greenish-white drops.

Gills pale dingy flesh-color pink (somewhat paler and more greyish than flesh), with brownish spots.

Stalk 4.5 cm x 15 mm, paler than cap and gills, but of same tint, hollow.

Notes by Hesler

Spores (6) 7-9 x (5) 5.5-7.5 u. Other micro characters as in Bas - 4774. Stipe cuticle a thin ixocutis; rosettes present.

The latex white, drying to greenish-white drops is not typical!  
Taste is <sup>±</sup>sharp in the throat after some time.  
          ^

Bas - 4774

LACTARIUS PALLIDUS (Pers. ex Fr.) Fr.

In Fagus - Carpinus forest, Eifel, Germany, September 26, 1966.

(No notes found).

Notes by Hesler

Spores 7-9 x 6-7.5 u, warts 0.3-0.6 u, bands broken or a few continuous, forming a partial reticulum. Pleurocystidia 57-86 x 7-10 u; cheilocystidia 34-60 (72) x 5-7 u. Pileus cuticle an ixocutis; hypoderm none. Stipe cuticle a thin ixocutis; rosettes present.

30387

LACTARIUS PALLIDUS Pers. ex Fr. SENSU Neuhoff

Rocheftort, Switzerland, Huijsman, August 18, 1961.

Notes by Huijsman

Latex white, practically mild.

Notes by Hesler

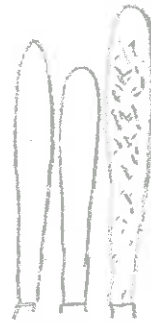
Spores (6)7-8.5 x (5)6-7  $\mu$ , ellipsoid, warts 0.4-0.8(1.0)  $\mu$  high, bands usually short, or one or two long ones, often sub-zebra-like, few obscure lines. Basidia 48-55 x 7-10  $\mu$ , 4-spored. Pleurocystidia 74-82 x 7-9  $\mu$ , subfusoid, apices acute to sub-rounded, granular-spangled; pseudocystidia filamentous; cheilocystidia 34-40 x 5-6  $\mu$ , subclavate to subfusoid, granular-spangled. Gill trama of short-celled, subparallel hyphae. Pileus trama vesiculose. Pileus cuticle an ixocutis, with an indistinct hypodermium. Stipe cuticle of ~~thin~~ <sup>slightly gelatinous,</sup> repent, brownish hyphae ~~an ixocutis,~~ rosettes present. Clamp connections none.

*Actinurus pallidus* sensu Nehoff

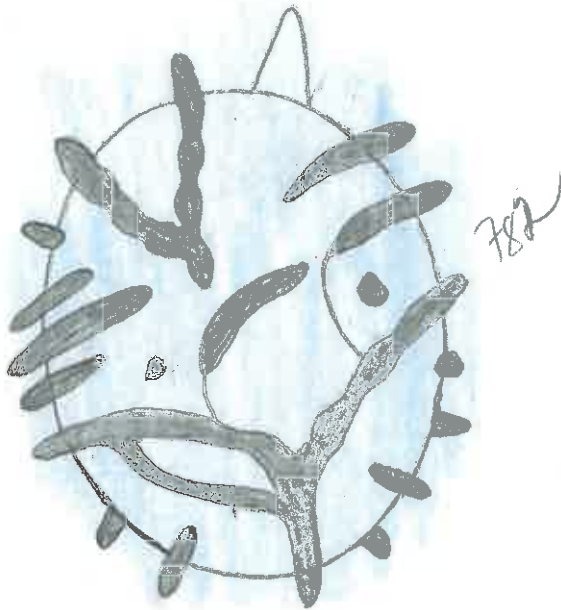
30387



Sp. x 1000



Ch. x 1000



Spore x 8000



35540

LACTARIUS PALLIDUS (Pers. ex Fr.) Fr.

Under beech, Montgomeryshire, Wales, September 12, 1967.

Notes by van Waveren

Cap 4-7 cm broad, strikingly slimy-slick (wet weather), pale cream colored, "alutace'", 10 YR 8/4 (7/3), older specimens 10 YR, 7/4. Latex white, unchanging, slowly distinctly but not very acrid.

Lamellae slightly decurrent, pale cream with pinkish flush.

Stipe 4-5 cm x 10-11 mm, dry, concolor or paler, cylindric, sometimes attenuated at base, not scrobiculate, slightly cavernous with loose sponge-like marrow.

Notes by Hesler

Spores 6-8.5 x 5.5-6.5 (7) u, warts 0.2-0.5 u, bands broken, a few long and unbroken, forming a partial reticulum. Pleurocystidia 48-90 x 7-10 u, ventricose, apices acute or rounded; pseudocystidia filamentous; cheilocystidia 28-36 x 5-6 u, subfusoid to subventricose. Pileus cuticle an ixocutis, hypodermium none. Stipe cuticle an ixocutis of repent, subglutinous hyphae; rosettes present. Clamps none. Taste is slowly, distinctly, but not very acrid.

LACTARIUS PALUDINELLUS Pk.

Sand Lake, marsh, N. Y., leg. Peck, August, 1884.

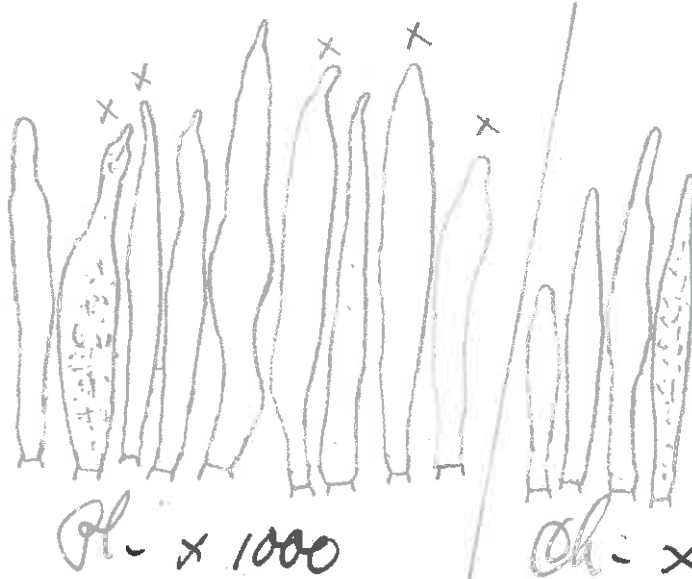
Type

Spores white in deposit,  $7-8.5 \times (5.5)6-7.5 \mu$ , ellipsoid or subglobose, warts  $0.4-0.7 \mu$ , broad bands and a few branches and lines forming a partial reticulum. Basidia  $38-44 \times 5-6 \mu$ , 4-spored. Pleurocystidia numerous,  $45-60 \times 4-9 \mu$ , ventricose, subclavate, often the apices tapering, granular-spangled; cheilocystidia  $27-48 \times 4-6 \mu$ , similar. Gill trama of undulating-subparallel hyphae. Pileus trama vesiculose. Pileus cuticle a colorless, gelatinous zone,  $40-80 \mu$  thick, with more or less erect pileocystidia, forming an ixotrichodermium, arising from an irregular cell-zone (an epithelium), the pileocystidia finally becoming more or less repent and gelatinized. Hypodermium of narrow, subparallel, short-celled hyphae. Stipe cuticle repent, dry; rosettes few. Clamp connections none.

Cf. LACUNARUM; Neuhoﬀ questions whether it is same. BUT, in LACUNARUM (acc. Neuhoﬀ) the pileus is differently colored, taste bitter, latex becomes yellow.

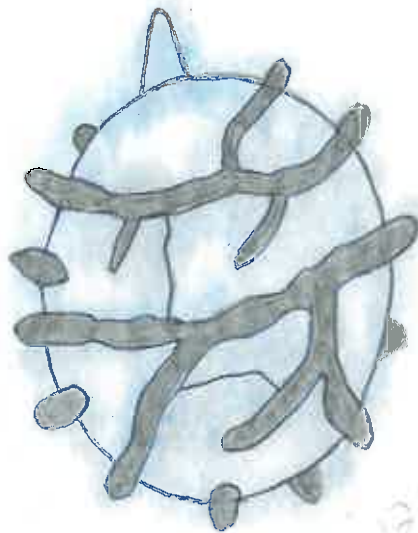
# Factorius paludinellus PK.

Type



Pl. x 1000

Ch. x 1000



Spore - x 8000



1775

Gelatinous  
pilesaptidia

epithelial zone

Hypodermium

Pileus ~~isotrichodermium~~  
x 1000

U  
LACTARIUS PANMOIDES Singer

Kew Bull. 1952(3): 300. 1952

(Translated from Latin by Dr. A. H. Moser)

Pileus up to 35 mm broad, isabelline or pallid cinnamon, in youth subtomentose especially on the margin, in advanced age everywhere irregularly spotted-venose, opaque, glabrescent. Context white or whitish, sticky on lower part of the stipe, softer-elsewhere; odor none, taste mild. Latex white, in youth the drying latex verges on cinnamon as well as in the spots of the lamellae.

Lamellae decurrent, rubello-griseoli ("caen stone," "vanilla"), alutaceous and dusty white at maturity, more pallid in youth, than frequently spotted by the latex, lamellulae regularly intermingled, sometimes forked, subdistant, medium broad.

Stipe 2-12 x 1.5-3 mm, whitish, tomentose-strigose in lower part, lateral, for a short distance and in back part running immarginate on to the surface of the pileus.

Spores in deposit not observed (certainly white or very pale cream), 7.5-9 x 6.2-7.5  $\mu$ , slightly ellipsoid, varying height (0.6-1.4  $\mu$ ), of type II, II-IIIa, IIIb, often crested (II), less often reticulate (IIIa), rarely incompletely reticulate (IIIb). Basidia 30-45 x 7-10.3  $\mu$ , 2-4-spored, clavate, later degenerating and then basidioles are transformed into cystidioid elements which are homologous to basidia. Lactocystidia (pseudocystidia created from the prolongation of latex-bearers into the hymenium) more or less 8.3  $\mu$  broad, apex rounded, not appendiculate, moderately numerous, filled with an amorphous but not cresylophil content. Gill trama interwoven but without sphaerocysts,

mixed with large, numerous lactifers, lactifers up to  $18.5\ \mu$  broad, hyphae cylindric in some cases with less than normal swelling but not exceeding  $7-11\ \mu$ . Subhymenium thin in youthful specimens with elongated hyphae, of small chains (of cells?) then some wider chains of elements, hardly isodiametric elements in the lower portion of the subhymenium. Pileus cuticle of yellowish erect thick-walled filaments created from the swollen elements of the hypodermal zone (these elements clavate-vesiculate or vesiculate-fusoid, or subglobose, frequently in vertical chains, hyaline,  $9.5-17\ \mu$  broad). All hyphae non-amyloid, without clamp connections.

At the base of living Bactris (palm) and on the dead trunks of trees in the lower mountain woods, even to the seashore, densely gregarious or imbricate.

TRINIDAD: Quinam, Dennis 109A, November 4, 1949; Naranja, October 2, 1949, Dennis 109 (TYPUS).

The yellow lactiferous vessels do not turn deep blue in cresyl blue mounts and the walls are not metachromatic. The hypodermal layer is pale blue, the epicuticular layer violet in cresyl blue.

PANUOIDES Singer, Sect. Nov.

Pileus epicutis composed of yellow hairs thick walled; hypodermium of inflated and often chained hyphae; spores heterotropic, crested or reticulate; upper surface of the adult pileus scrobiculate-venose; stipe lateral; latex whitish-watery, no gloeocystidia; taste mild; growing on wood. Type: Lactarius panuoides Smg. (p. 301).